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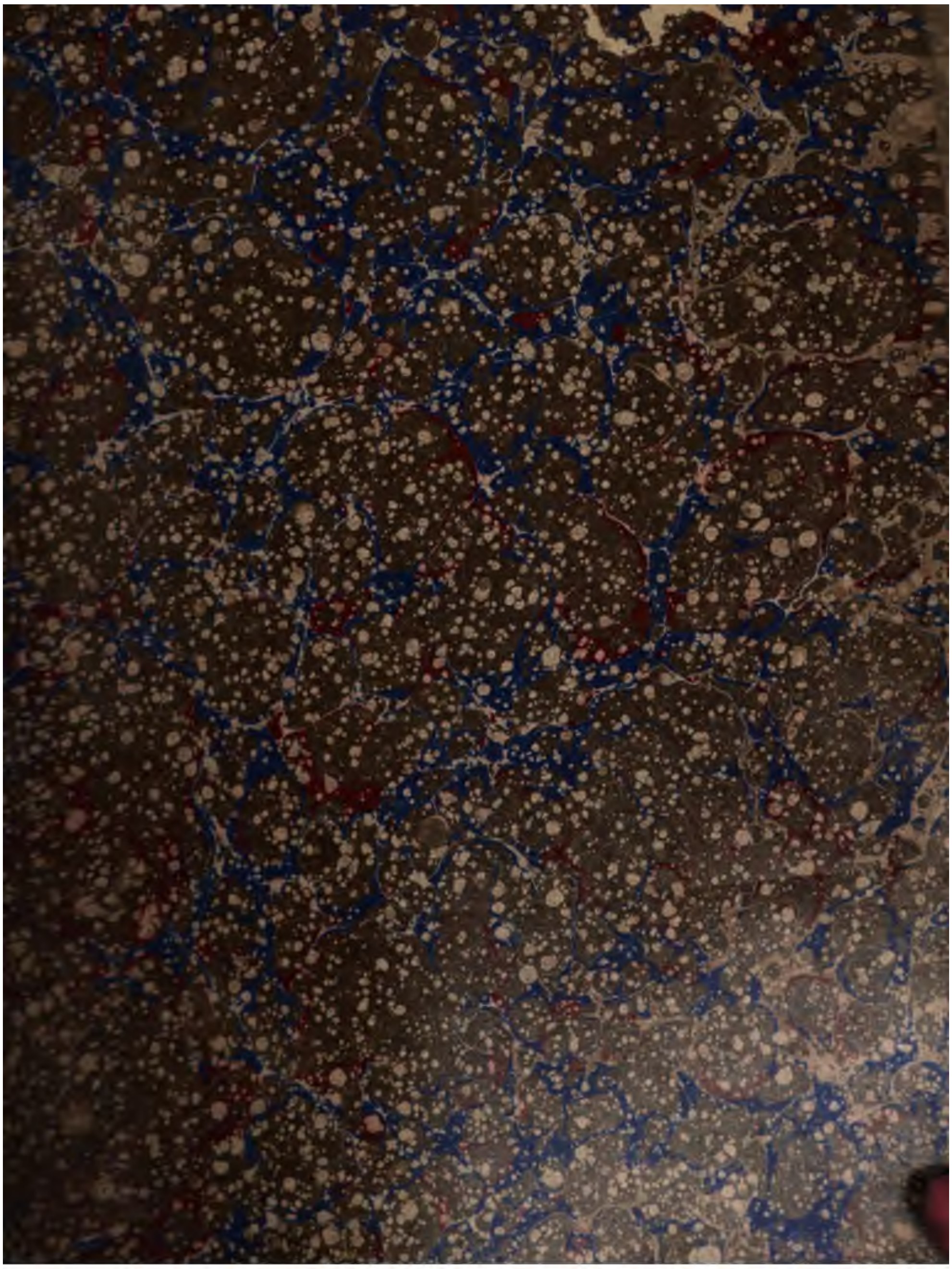

HANDBOOK

OF

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

POTTER.

NOTICES OF THE PRESS

OF THE FIRST EDITION OF

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HANDBOOK

OF

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS,

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PHYSIOLOGICAL ACTION OF DRUGS, THE SPECIAL THERAPEUTICS OF DISEASE, OFFICIAL AND EXTEMPORANEOUS PHARMACY, AND MINUTE DIRECTIONS FOR PRESCRIPTION WRITING.

BY

SAM'L O. L. POTTER, M.A., M.D.,
PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE IN THE COOPER MEDICAL COLLEGE OF SAN FRANCISCO: AUTHOR OF "QUIZ-COMPENDS" OF ANATOMY AND MATERIA MEDICA, "AN INDEX OF COMPARATIVE THERAPEUTICS," AND "A STUDY OF SPEECH AND ITS DEFECTS." LATE A. A. SURGEON, U. S. ARMY.

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TO MY WIFE

I DEDICATE THIS BOOK, IN
LOVING APPRECIATION OF THE PATIENCE
WITH WHICH SHE HAS BORNE
MY ABSORPTION IN THIS AND OTHER
PROFESSIONAL WORK.

PREFACE.

THE book, which this preface completes, has occupied the writer's leisure hours during the past two years, and in a measure has grown out of some less pretentious volumes previously written by him. The continued favor shown by teachers and students, both in this country and in England, to his three manuals in the "Quiz-Compend" series for students, and particularly to the volume on Materia Medica and Therapeutics, has encouraged their author to hope that a handbook from him on the same subject, but embracing a wider scope, might meet with a corresponding degree of appreciation. The fact that quite a number of new manuals on Materia Medica have lately appeared, has not deterred him from entering the field, nor diminished his confidence in the approbation of his readers; but has rather seemed a proof that most of the older text-books on this branch of medical knowledge are no longer satisfactory, even with the regular revisions which they undergo at stated periods. Hence he expects for this handbook a position, among the recent manuals of its class, as high as its merits and demerits may entitle it to receive in the estimation of those for whose use it has been prepared.

The author's intention has been to produce a book which would embrace in a single volume the Essentials of practical Materia Medica and Therapeutics, treating of each subject in as concise phraseology as possible consistent with the delineation of every important feature. He has also endeavored to formulate such minute and definite directions for the framing of Prescriptions as might elucidate what to many is a very difficult problem. Furthermore, he has tried to present as much information upon the subject of Pharmacy as every physician should possess, in order to handle the implements of his profession with confidence, and to direct their use by others with pharmaceutical accuracy.

The complete fulfilment of these aims would be realized if the book should take rank as a working companion to the advanced student and the junior practitioner; and be deemed by them a reliable guide through the forest of observations and experiments on drug actions and uses, which makes progress slow for the already over-burdened mind, when ploughing through the more exhaustive and exhausting text-books.

Although this book is essentially a compilation, as all books of its class must be, there will be found in its pages much original matter derived from the writer's own experience in professional life. The arrangement of the matter will be found to be in some respects unique. After full consideration of the many arrangements of the Materia Medica in vogue, a modified alphabetical plan was adopted, by which the advantages of the alphabetical order might be retained, while permitting the grouping together of agents which are closely related, physiologically and therapeutically, under the title of the principal member of the class—the chief, as it were, of that particular clan. Thus, under the title AMYL NITRIS (Nitrite of Amyl), will be found mention also of the Nitrites of Ethyl, Sodium and Potassium, and their congener Nitro-Glycerin, all of which are closely allied to the first-named and to each other, in respect of their actions and uses. A very elaborate section on Drug Classification is placed before the Materia Medica, in order to supplement such deficiencies in grouping as are inevitable in an alphabetical arrangement.

In detailing the characteristics of an important drug, its physical properties and chemical constituents are first briefly enumerated, then its preparations are described in the official language of the pharmacopœia, usually somewhat abbreviated; any important unofficial preparations being also noted, and all the compounds into which it enters enumerated. Next the physiological action is taken up, its characteristic features being first described; then the actions resulting from an ordinary medicinal dose, next those produced by small doses continued, and finally those from a toxic dose. These are followed by a brief account of its antagonists, antidotes and incompatibles, if any; and a concise summary of its therapeutical applications closes the article;—the whole presenting, it is hoped, a clearly defined word-picture of the drug under consideration. Every article and preparation comprised in the last edition of the U. S. Pharmacopœia is fully noticed, while all the prominent unofficial agents receive such mention as their respective importance seems to demand.

The second part of the book is devoted to Pharmacy, and has been written from the standpoint of a conviction that many young practitioners would gladly dispense their own medicines, if provided with a few practical directions on the subject; thereby saving many a dollar from the drug store, preventing in their own practices at least the "renewals" which constitute so bad a feature of modern pharmaceutics, and gaining for themselves a practical acquaintance with their professional weapons which cannot but make them better physicians and more accurate prescribers. In this section of the book Prescription Writing receives full consideration, and many standard formulæ are given as samples of prescriptions of each kind in extemporaneous use.

In the third part the subject of Special Therapeutics is treated of elaborately, and in the form of an alphabetically arranged Index to the treatment of diseases, as laid down by the most recent authorities. Every indication for the use of a drug is referred to its author by his initial, and to the most prominent articles are appended a few selected formulæ, to serve as guides to the neophyte in prescribing.

The Appendix contains numerous tables, comprising diagnostic hints, Latin terms and phrases, formulæ for hypodermic use, metric equivalents, specific gravities and volumes, and obstetric memoranda; as also Notes on temperature in disease, the use of the clinical thermometer, the treatment of poisoning, and the examination of urine; also formulæ representing the most noted patent medicines.

The Index has received especial attention, from a conviction that, if well made, it is the best part of a good book. Every title, synonym and other reference of importance is included therein, double and treble entries being made in every instance which seemed to require such repetition.

Nearly all the regular text-books have been laid under contribution in the preparation of the book, but especial use has been made of the works of Bartholow, Ringer, Wood, Phillips, Piffard, Waring and Brunton, in their latest editions; as well as of the writer's *verbatim* notes of two courses of didactic and clinical lectures delivered by Professors Bartholow and Da Costa in the Jefferson Medical College and Hospital and in the auditorium of the Pennsylvania Hospital. On pages 479 and 480 will be found a full list of the authorities referred to by initials in the section on Special Therapeutics.

The term "officinal," as applied to drugs recognized by the pharmacopœia has been discarded, the word "official" being used instead; for the simple reason that the idea to be conveyed is expressed more correctly by the latter term than by the former one. When none but official drugs and preparations were kept in the *officina* or drug store, it was eminently proper to call them "officinal," but inasmuch as this class does not nowadays constitute much over one-fourth part of the officinal stock, it is a wilful debasement of our professional weapons, as well as an inexcusable misnomer, to apply the shop-title to them any longer.

SAN FRANCISCO,
December, 1886.

In this, the second edition, all known errors have been corrected, many articles have been entirely re-written, much new matter has been incorporated, and the original text has received a thorough revision.

SAM'L O. L. POTTER.

330 SUTTER STREET,
SAN FRANCISCO, December, 1889.

ERRATA.

Page 123, line 22—"Avena Sativa" should be in capitals.
Page 157, line 15 from bottom—for "alkaloid" read "glucoside."
Page 331, line 2 from bottom—for "*Quebrashine*" read "*Quebrachine.*"
Page 509, line 24 from bottom—"$\frac{1}{26}$" read "$\frac{1}{20}$."
Page 511, line 27—for "Vaseline" read "Vaselini."
Page 563, line 4—for "Nitrate" read "Nitrite."
Page 655, line 20—for "Iodine" read "Iodide."

TABLE OF CONTENTS.

PAGE
- **INTRODUCTION**, 17
  - Materia Medica, 17
  - Pharmacy. 17
  - Empirical Therapeutics, 18
  - Rational Therapeutics, 18
  - Administration of Medicines, 20
  - Dosage of Medicines, 22
  - Classification of Medicines, 23
    - Stimulants and Sedatives, 23
    - Agents acting chiefly on the Nervous System, 24
    - Agents acting on the Organs of Special Sense, 28
    - Agents acting on Respiration, 30
    - Agents acting on the Circulation, 33
    - Agents acting on the Digestive System, 34
    - Agents acting on Metabolism, 41
    - Agents acting on Excretion, 43
    - Agents acting on the Generative System, 47
    - Agents acting on the Cutaneous Surface, 49
    - Agents acting on Microbes, Ferments, etc., 51
    - Agents acting upon each other, 52
- **PART I.—MATERIA MEDICA AND THERAPEUTICS**, 55
  - Abrus to Zingiber, 55–406
- **PART II.—PHARMACY AND PRESCRIPTION WRITING**, 407
  - Constituents of Vegetable Drugs, 408
  - Official Operations, 410
  - Official Preparations, 419
  - Extemporaneous Pharmacy, 434
  - Weights and Measures, 435
    - Metric System, 436
    - Approximate or Domestic Measures, 438
    - Specific Gravity and Specific Volume, 439
  - Prescriptions, 439
    - Analysis of a Prescription, 439
    - Principles of Combination, 441
    - Prescription Writing, 442
    - Abbreviations, 443
    - Prescription Blanks, 443
    - Renewals, 444
    - Filling a Prescription, 445
    - Stock Solutions, 447
    - Rules for the Pharmaceutical Student, 447

PAGE
INCOMPATIBILITY, ... 448
Chemical Incompatibility, ... 448
Pharmaceutical Incompatibility, ... 450
Therapeutical Incompatibility, ... 451
Rules for Avoidance of Dangers, ... 452
EXTEMPORANEOUS PREPARATIONS AND FORMULÆ, ... 453
Excipients for Mixtures, ... 455
Excipients for Emulsions, ... 458
Excipients for Pills, ... 463
PART III.—SPECIAL THERAPEUTICS, ... 479
REFERENCES AND BIBLIOGRAPHY, ... 479
ABDOMINAL PLETHORA TO YELLOW FEVER, ... 480–690
APPENDIX, ... 691
LATIN TERMS, PHRASES, ETC., USED IN PRESCRIPTIONS, ... 691
VERBS, PARTICIPLES, PREPOSITIONS, ETC., ... 699, 700
GENITIVE CASE-ENDINGS, ... 700
HYPODERMIC FORMULÆ, ... 701
CHLORODYNE, COMPARISONS OF TEN FORMULÆ THEREFOR, ... 703
PATENT MEDICINES, ... 704
THE TREATMENT OF POISONING, ... 707
TABLES OF DIFFERENTIAL DIAGNOSIS, ... 712
NOTES ON TEMPERATURE IN DISEASE, ... 717
Clinical Thermometry, ... 717
OBSTETRICAL MEMORANDA, ... 719
Signs of Pregnancy, ... 719
Signs of Labor, ... 719
Average Pelvic Diameters, ... 720
Development of the Fœtus, ... 720
Diameters of the Fœtal Skull at Term, ... 720
ASPHYXIA AND APNŒA, ... 721
CLINICAL EXAMINATION OF THE URINE, ... 722
ETHICS, THE HIPPOCRATIC OATH, ETC., ... 724
TABLE OF SPECIFIC GRAVITIES AND SPECIFIC VOLUMES, ... 725
TABLE OF DROPS IN, AND WEIGHTS OF, A FLUID-DRACHM OF VARIOUS LIQUIDS, ... 726
TABLE OF WEIGHTS AND MEASURES, ... 726
TABLE FOR CONVERTING APOTHECARIES' WEIGHTS AND MEASURES INTO GRAMS, ... 727
INDEX, ... 729

INTRODUCTION.

Pharmacology, from φάρμακον, *a drug*, λόγος, *a discourse*, is a general term which properly includes all matters pertaining to the study of medicinal agents in the widest possible sense, embracing all of Materia Medica and Pharmacy, with so much of Therapeutics as relates to drugs. The term is however frequently employed in a more restricted sense, including only the physiological action of drugs; a subject to which the title *Pharmacodynamics* is much more appropriately applied.

Materia Medica is that branch of medical science which treats of the substances used as medicines, their origin, composition, physical characteristics, chemical properties, modes of preparation and administration, physiological and toxicological actions.

PHARMACODYNAMICS, from φάρμακον, *a drug*, δύναμις, *power*, is the proper title for that portion of the Materia Medica which relates to the physiological action of drugs, that is, the influence of drugs upon the healthy human body to modify its physiological activity.

TOXICOLOGY is another subdivision, and includes the effects of drugs when administered in poisonous doses, together with the study of the drug-antagonists for the most dangerous symptoms produced, and the appropriate chemical antidotes.

Pharmacy is the art of preparing medicines for use and dispensing them on the order of the therapeutist. It includes a knowledge of the Materia Medica, an acquaintance with the theories and manipulations of chemistry, and an intimate practical knowledge of many special operations peculiar to itself.

Therapeutics, from θεραπεύειν, *to attend upon*, includes all that relates to the science and art of healing; and embraces the application, not only of medicines to the alleviation or cure of disease, but of all other agents which may aid in the accomplishment of the same result. The operations of Nature herself, as well as of the substances described in the Materia Medica, and those of all other remedial measures, as food, climate, clothing, heat, cold, electricity, etc., are all embraced in the term Therapeutics, which may be divided into two grand divisions, viz.:—

NATURAL THERAPEUTICS, including the operations of the Vis Medicatrix Naturæ,—the modes and processes of healing which occur independently of Art, for the spontaneous decline and cure of disease. There is no more completely established fact in science than that the living organism is in itself adequate to the cure of all its curable disorders. This natural law enables the homœopath to relate his sugar cures, aids the medical skeptic to hold to his infidelity, and helps all physicians out of more close places than most of them are willing to acknowledge before their *clientèle*. This part of the subject is not taught in the schools except in connection with pathology, and by the chair of Theory and Practice of Medicine. It is deserving of a special chair and of more systematic treatment than it receives.

APPLIED THERAPEUTICS embraces the application by Art of agents foreign to the living organism, for the purpose of aiding Nature to restore the body to a healthy condition. This division is the portion of the subject which is taught separately and systematically in the schools, and therefore is alone considered in the following pages.

Other divisions of the general subject of Therapeutics employed in professional literature and conversation are those entitled "Empirical" and "Rational Therapeutics."

EMPIRICAL THERAPEUTICS is a term applied to the use of medicinal or other therapeutical agents for the sole reason that they have been tried previously with successful results in cases apparently identical with the one under treatment. By those who advocate this method it is styled the Therapeutics of Experience, and claimed to be an accumulation of means of combating disease simply by observation and experiment, independently of physio-pathological reasoning (Hartshorne). It was necessarily the original method in Therapeutics, has conferred many rich gifts upon medical science, and has been advocated by many great physicians, its latest and ablest expounder being the eminent and lamented Niemeyer.

The use of Opium to relieve pain,—that of Cinchona for malarial fevers,—of Colchicum in gout,—of Potassium Iodide in syphilis,—of the Bromides in epilepsy,—of Cod-liver Oil in phthisis,—are examples of the empirical use of remedies. But, after all has been said for it that can be said, the fact remains that it is essentially an unscientific method, a mere elaboration of the prevailing popular habit of recommending Mrs. A. to use pepper tea, because it cured Mrs. B. of "the very same trouble." Permitted to reign supreme it would be destructive to all exactness in therapeutical progress. The so-called "experience" of one observer is too often overbalanced by the experience of another equally competent and trustworthy; and as few are encouraged to record their failures with remedies, there can be no scientific comparison of the failures with the reported successes. For this reason empirical methods would tend to a minimum degree of accuracy in a science which, in the very nature of things, can never be an exact one;—though undoubtedly such methods will always prevail to some extent.

RATIONAL THERAPEUTICS embraces the use of remedies for reasons based on a knowledge (1) of the pathological conditions present in the subject, and (2) of the physiological action of the agent employed. This method is the very antithesis of empiricism, and has been the leading idea in every revolt against empirical therapeutics in the past. Humoralism, Chemicism, Solidism, Stimulism, Galenism in the 2d century, Paracelcism in the 16th, and Hahnemannism in the 19th,—all originated in efforts to find a more rational system of administering medicines than the prevailing empiricism of the day.

The illustrious Albrecht von Haller, the father of Physiology and the author of the doctrine of Irritability, was the real originator of modern physiological therapeutics. In the preface to his Swiss Pharmacopœia (*circa* A.D. 1755), occur the following remarkable directions:

"Nempe primum in corpore *sano* medela tentanda est, sine peregrina ulla miscela: odoreque et sapore ejus exploratis, exigua illius dosis ingerenda et ad omnes quæ inde contingunt affectiones, quis pulsus, quis calor, quæ respiratio, quænam excretiones, attendendum. Inde adductum phenominorum in sano obviorum, transeas ad experimenta in corpore ægroto."

"*In the first place the remedy is to be tried on the healthy body, without any foreign substance mixed with it; having been examined as to its odor and taste, a small dose is to be taken, and the attention directed to all effects which thereupon occur; such as upon the pulse, the temperature, the respiration, the excretions. Having thereby adduced their obvious phenomena in health, you may pass on to experiment upon the sick body.*"

Forty or more years after these rules were laid down *ex cathedra* by Haller, the central idea contained in them was incorporated, as one of the main pillars, in a medical edifice then being erected in Germany. In the course of construction this pillar became so buried beneath a superstructure of palpable absurdities, that the medical profession, in its anxiety to steer clear of the whole mass, almost forgot the humble corner-stone, appropriated from the teachings of one of its own greatest chieftains. While, however, the masses of the profession, blinded by its prejudices, turned away from everything which savored of drug-experimentation, a few in every country were quietly working on the lines of the Hallerian dictum; and as a result of their labors, the present generation has seen the development of an idea, announced 130 years ago, but now inspiring the minds of teachers and students all over the civilized world. Medical Colleges are recognizing physiological drug-experimentation as a part of their regular curricula;—laboratories are fitted up in many of the schools with costly instruments of precision, for the more exact prosecution of this study;—and under the direction of such men as Wood, Ringer, Murrell, Brunton, Bartholow, Hildebrandt, Liebermeister, Husemann, Schmiedeberg, etc., systematic researches are being conducted upon the physiological action of every agent hitherto used in medicine. The alkaloids, and other component principles of vegetable drugs, are being subjected to the same rigid observation,—as also every new compound which chemistry gives to medicine. Journals, in every civilized country, teem with the results of these labors; and no medical student is permitted to pass the graduating ordeal until he has mastered the essential characteristics of the physiological action of the important medicaments. What has hitherto been the conviction of but a few, is daily growing into a fixed canon of professional belief, viz:—that physiological experimentation with drugs must be the basis of their therapeutical employment, and that all real advance towards the establishment of Therapeutics as a science, must be made upon the course laid down by Haller. Still, in the words of Brown-Séquard, "Therapeutics will cease to be empirical, only when this last kind of knowledge shall be fully obtained."

ADMINISTRATION OF MEDICINES.

Medicines may be introduced into the circulation by various routes, as the gastro-intestinal tract, the rectum, the respiratory tract, the veins and arteries, the subcutaneous cellular tissue, and the integument itself.

The Gastro-intestinal Route is the one most frequently employed, being the most convenient. The remedies, after being swallowed, find their way into the current of the circulation, through the walls of the gastro-intestinal bloodvessels and the lacteals. When the stomach is empty and its mucous membrane healthy, crystalloidal substances in solution pass through the walls of its vessels with great rapidity. Colloidal substances (fats, albumen, gum, gelatin, etc.) require to be digested and emulsified before they can be absorbed.

The Rectum will absorb many substances applied in the form of Enemata or Suppositories. Those most suited to this route are the salts of the alkaloids in solution, especially those of Morphine, Atropine and Strychnine, the latter being absorbed more rapidly per rectum than by the stomach. Acid solutions, if not too frequently repeated, are also well administered by this channel.

The Respiratory Tract admits of the rapid absorption of medicinal substances through its extensive blood-supply. The inhalation of vapors or atomized fluids, the insufflation of powders into the nares, fauces, larynx, etc., and the use of a medicated nasal douche, are methods whereby this channel may be utilized.

The Veins are only used as a route of medication in emergencies, where the other channels are not available, and where immediate action is necessary to the preservation of life, the operation being a highly dangerous one. The injection intravenously of *Saline Solutions* in the collapse of cholera, diabetic coma, etc.,—*Blood or Milk* as a last resort in excessive hemorrhage, epilepsy, uræmia, the collapse of cholera, etc.,—and a solution of *Ammonia* for the bites of venomous reptiles, Hydrocyanic-acid poisoning, Opium narcosis, Chloroform asphyxia, etc., are the instances admitted in practice.

Arterial Transfusion has also been performed successfully in a number of cases, and is considered safer than venous transfusion when a large quantity of fluid has to be introduced into the circulation. A special apparatus is employed for these purposes, known as Aveling's Transfusion Syringe, but the ordinary Dieulafoy's aspirator slightly modified, may be used with safety and convenience. The danger of the operation lies in the liability of the introduction of air into the circulation, an occurrence which causes instant death in the human subject.

The Hypodermic Method is the introduction of medicines into the organism by injecting them into the subcutaneous areolar tissue, from which they are quickly absorbed by the lymphatic and capillary vessels.

The medicines must be in solution, of neutral reaction and freshly prepared, the usual menstruum being distilled water; though spring water filtered will answer just as well, and much better than distilled water which has been standing several days, and exposed from time to time to the air. The solution is to be injected *beneath* the skin, by a hypodermic syringe, care being taken to avoid puncturing a vein. The most suitable localities for the injection are the *external* aspect of the arms and thighs, the abdomen, the back, and the calves of the legs. On the external aspect of the thigh, just in front of the great trochanter, there is an area of some two inches square, over which the insertion of a fine hypodermic needle is not felt, so barren is the skin in that region of the sensitive nerve filaments.

After nearly filling the syringe with the solution to be used, the needle should be screwed on tightly; and with the instrument held in a vertical position, point uppermost, the excess of solution over the amount required should be ejected, thus expelling air-bubbles and filling the needle itself. A portion of skin should be grasped by the thumb and forefinger at the site selected for the injection, into which the needle should then be quickly inserted until its point has passed *beneath* the skin, when the piston may be pressed down slowly, delivering the solution so gradually as to avoid rupturing the tissue. If the solutions are freshly prepared with clean water, the needles kept clean and sharp, and the injection be made *beneath* the skin *not into it*, there will be no risk of producing abscesses with the agents ordinarily employed. *Tablets* for hypodermic use are prepared by the prominent manufacturers, each containing one dose. They may be readily dissolved in a teaspoon at the bedside, and are very convenient for the pocket, if put up in a case with a good hypodermic syringe, as may be obtained from Parke, Davis and Co., of Detroit. Their regular line of Hypodermic Tablets includes the agents named in the following list, put up in tubes of 25 each.

List of Hypodermic Tablets.

Aconitine (crystals),	gr. 1/120.	Morphine Sulphate,	gr. 1/8.
Apormorphine Muriate,	gr. 1/10.	Morphine & Atropine, No. 1.	
Atropine Sulphate,	gr. 1/50.	Morphine Sulph.,	gr. 1/8.
Atropine Sulphate,	gr. 1/100.	Atropine Sulph.,	gr. 1/200.
Cocaine Hydrochlorate,	gr. 1/6.	Morphine & Atropine, No. 2.	
Conine Hydrobromate,	gr. 1/8.	Morphine Sulph.,	gr. 1/4.
Colchicine,	gr. 1/50.	Atropine Sulph.,	gr. 1/150.
Corrosive Sub. and Urea,	gr. 1/25.	Picrotoxin,	gr. 1/50.
Digitalin (soluble),	gr. 1/100.	Pilocarpine Hydrochlor.,	gr. 1/3.
Gelsemine Muriate,	gr. 1/50.	Pilocarpine Nitrate,	gr. 1/3.
Hyoscine Hydrobromate,	gr. 1/100.	Physostigmine Sulph.,	gr. 1/100.
Hyoscyamine,	gr. 1/50.	Sodium Arseniate,	gr. 1/10.
Morphine Sulphate,	gr. 1/4.	Strychnine Sulphate,	gr. 1/50.
		Strychnine Sulphate,	gr. 1/100.

[For Formulæ for Hypodermic Solutions, see Appendix.]

Parenchymatous Injection is the delivery of a medicine deeply into the tissues, either to affect a muscle itself or to locally influence some important nerve-trunk. The principal agents used in this manner are Strychnine for palsied muscles, Chloroform for sciatic and other neuralgias, and Salts of Cocaine for local anæsthesia.

The Skin is an active absorbent of crystalloidal substances when its epidermis or cuticle is removed. By this route there are four methods of introducing medicaments into the circulation, viz.—the Enepidermic, Epidermic and Endermic Methods, and Inoculation.

The Enepidermic Method consists in placing the medicine in simple contact with the epidermis, no friction being used to hasten its penetration. Chloroform and Oleic Acid solutions of the alkaloids pass by osmosis in this manner with comparative ease, but aqueous solutions act very slowly and alcoholic ones with great difficulty if at all.

The Epidermic Method consists in the use of friction to promote the passage of the medicament between the cells of the epidermis. Mercurial Ointment, Cod-liver Oil, and other fats, Oleates, etc., are used in this way for their local and systemic effects.

The Endermic Method obviates the difficulty of absorption through the cuticle by removing the latter through the agency of a blister, and then powdering the medicament over the surface of the denuded derma.

An ordinary cantharides-plaster, followed by a poultice to raise the blister, may be employed; but a quicker method is to place upon the skin a piece of lint soaked in Stronger Water of Ammonia, covering it with a watch-glass or a piece of oiled silk to prevent evaporation. The blister raises rapidly and should then be removed with scissors. Morphine, Atropine, Quinine and Strychnine, are the agents generally used in this manner, but the method is painful and unpopular.

Inoculation is the introduction of medicinal agents through the scraped or punctured skin by an operation similar to that employed for vaccination.

DOSAGE OF MEDICINES.

The Doses given throughout this book are for adults; for children the following rule (Young's) will be found the most convenient. Add 12 to the age, and divide by the age, to get the denominator of a fraction, the numerator of which is 1. Thus, for a child two years old, $\frac{2+12}{2} = 7$, and the dose is one-seventh of that for an adult. Of powerful narcotics scarcely more than one-half of this proportion should be used. Of mild cathartics, two or even three times the proportion may be employed.

For Hypodermic Injection, the dose should be two-thirds or three-fourths of that used by the mouth; by rectum five-fourths of the same. *Strychnine* acts more actively when given per rectum than by the stomach.

Conditions which modify the action of medicines, and therefore affect their dosage, are—age, body-weight, temperament and idiosyncrasy, drug-habits, intervals between doses, time of administration, condition of the stomach, temperature of the body, cumulative drug-action, mode and form of drug-administration, disease, climate, race, etc.

Children bear Opiates badly:—but on the other hand they stand comparatively large doses of several other drugs; such being Arsenic, Belladonna, Calomel, Ipecacuanha, Squill, Rhubarb, and several other purgatives.

CLASSIFICATION OF MEDICINES.

In the present state of knowledge respecting the actions and uses of medicinal agents, no really scientific classification of these substances is possible. Some writers have adopted a system based on the natural relations of the various articles to each other, while many classify them according to their effects on the human system, and others make no attempt at arrangement but treat of them in alphabetical order. The latter method has been followed in this work, from a conviction that every medicine should first be studied as an individual, both with respect to its physiological actions and its therapeutical applications. When the student has thus made himself familiar with the characteristic features of each article of the Materia Medica, he may begin, by comparing one with another, to seek acquaintance with their more delicate lights and shades. Some system of classification then becomes imperative as an aid to the memory, and as the titles of the groups to which the various agents belong in any physiological classification are also used to express their actions and uses, the following synopsis is inserted as an appropriate introduction to the section on Materia Medica and Therapeutics.

STIMULANTS AND SEDATIVES.

These are general terms employed in various classifications with very little discrimination.

Stimulant (*stimulus*, a goad),—is a term which is used in various senses when applied to medicinal agents. Alcoholic preparations, which are true narcotics, are commonly termed "stimulants," and the same expression is employed to designate any agent which excites the organic action of a part of the economy.

Diffusible Stimulants are those which have a prompt but transient effect, such as Alcohol, Ammonia, Camphor, etc. *Spinal Stimulants* exalt the functions of the cord, as Strychnine, Picrotoxin, Ergot, Atropine, Phosphorus. *Cardiac Stimulants* increase the action of the heart, as Alcohol, Atropine and Morphine in small doses, Strychnine, etc., also Squill, Convallaria, Cimicifuga and Digitalis, which slow but strengthen the cardiac action. *Vaso-motor Stimulants*, as Alcohol, Chloroform, Ether, Ammonia, Strychnine, Digitalis and Squill, acting on the vaso-motor centre; and the Nitrites, Belladonna, Electricity, Volatile Oils, etc., acting as local dilators of the vascular system. *Cerebral Stimulants*, as Alcohol, Opium, Belladonna, Caffeine, Cocaine, Theine, Cannabis, Chloroform, Ether, Tobacco, etc. *Renal Stimulants*, as the diuretic group. *Stomachic Stimulants*, as the Aromatics, Volatile Oils, Vegetable Bitters, Mineral Acids, Nux Vomica, Mustard, Capsicum, etc. *Hepatic Stimulants*, as Nitro-muriatic and Nitric Acids, and the cholagogue purgatives Podophyllum, Jalap, Leptandra, Euonymin, Iridin, etc. *Intestinal Stimulants*, as Mercurials, Elaterium, Colocynth, Jalap, Scammony, Podophyllum, etc., which affect the glandular apparatus,—and Belladonna, Physostigma, Nux Vomica, Rhubarb, Senna, Aloes, Frangula, Cascara, etc., which chiefly affect the muscular fibres and the intestinal nerves. *Cutaneous Stimulants*, as the diaphoretic group, and the rubefacients Mustard, Capsicum, Turpentine, Ammonia, etc. All stimulation reacts into depression, and most of the agents which stimulate the nerve centres at first soon depress and finally paralyze them.

Sedatives (*sedo*, to allay),—are agents which exert a soothing influence on the system by lessening functional activity, depressing motility and diminishing pain.

General Sedatives include the narcotics and anæsthetics. *Local Sedatives* include Aconite, Opium, Ice, etc. *Pulmonary Sedatives*, as Hydrocyanic Acid, Veratrine, and the nauseants and emetics. *Spinal Sedatives*, as Physostigma, Gelsemium, Potassium Bromide. *Stomachic Sedatives* include Arsenic, Bismuth, Nitrate of Silver, Bicarbonate of Sodium. *Vascular Sedatives*, as Digitalis, Tobacco, Aconite, Veratrum, and the emetics. *Nervous Sedatives*, among which are Potassium Bromide, Tobacco, Lobelia, and the group of spinal depressants.

Agents Acting Chiefly on the Nervous System.

Motor-Excitants are agents which increase the functional activity of the spinal cord and the motor apparatus, producing disturbances of motility, heightened reflex excitability, and tetanic convulsions when given in large doses, their ultimate effect being motor paralysis from over-stimulation.

The most important members of this class are *Nux Vomica* and *Ignatia*, with their alkaloids *Strychnine* and *Brucine*, also *Thebaine*, the tetanizing alkaloid of Opium. It also includes Morphine and Atropine, which, though at first sedative, when given in large doses produce convulsions. The respiratory centre in the medulla is stimulated by Strychnine, Atropine, Ammonia, and small doses of Alcohol, Ether and Chloroform. The motor convolutions in the brain are stimulated by Alcohol in moderate doses, as also for a brief period by Ether and Chloroform.

The end-organs of the motor nerves are stimulated by the local use of Electricity, Strychnine and friction; and are irritated by the internal administration of Aconitine, Nicotine, Camphor, Pilocarpine and Pyridine. Other members of this class are embraced in the following list.

Nux Vomica.
Ignatia.
Strychnine.
Brucine.
Thebaine.
Morphine.*
Atropine.*
Alcohol.†
Ether.†
Chloroform.†
Ammonia.
Absinthe.
Buxine.
Calabarine.
Ergot.
Ustilago.
Gossypium.
Picrotoxin.
Aconitine.
Nicotine.
Camphor.
Digitalis.
Convallaria.
Cimicifuga.
Pilocarpine.
Pyridine.
Rhus Toxicoden.
Electricity.

Motor-Depressants lower the functional activity of the spinal cord and motor apparatus, and in large doses paralyze them. Some act indirectly by reducing the spinal circulation, as Digitalis, Aconite and large doses of Quinine; others by a directly paralyzant action on the centres. The principal members of this class may be enumerated as follows, viz.:—

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* In large doses.

† In small doses.

Opium, Morphine.
Gelsemium.
Muscarine.
Pulsatilla.
Grindelia.
Phytolacca.
Physostigma.
Belladonna.
Stramonium.
Hyoscyamus.
Pilocarpus.
Quebracho.
Camphor.
Aconite.
Tobacco.
Lobelia.

Curare.
Conium.
Chloral.
Ergot (at last).
Arnica.
Ailanthus.
Veratrum.
Alchohol.*
Ether.*
Chloroform.*
Bromides.
Potassium.
Lithium.
Zinc.
Prussic Acid.
Potass. Cyanide.

Amyl Nitrite.
Sodium Nitrite.
Methyl Strychnine.
Ethyl Strychnine.
Methyl Thebaine.
Methyl Veratrine.
Methyl Conine.
Other Methyl Compounds.
Ammonium Cyanide.
Ammonium Iodide
Ethyl Ammonium Chloride.
Amyl Ammonium Chloride.
Amyl Ammonium Iodide.
Amyl Ammonium Sulphate.
Other Compound Ammonias.
Galvanism.

The motor centres in the medulla are powerfully depressed by Opium, Morphine, Aconite, Conium, Chloral, Physostigma, and large doses of Alcohol, Ether and Chloroform, The three last named are also paralyzers of the motor convolutions in the brain, arresting all voluntary movements when administered in sufficient quantity. The anterior cornua of the cord are greatly depressed by Physostigma and other agents, and the motor nerves by Conium, Methyl-Strychnine, etc., both actions resulting in paralysis of the limbs. *Curare*, even in small doses, paralyzes the end-organs of the motor nerves, and Belladonna, the compound Ammonias, Methyl compounds, etc., exercise a similar but less powerful influence. *Galvanism* is also an effective local depressant of motor activity.

Local Stimulants increase common sensibility to the extent of producing pain, chiefly by direct action upon the end-organs of the sensory nerves in the skin, though some act probably by stimulating the local circulation, as in inflammation. The principal members of this group are—

Faradism.
Heat.
Cold.
Alcohol.
Ether.

Chloroform.
Carbolic Acid.
Creasote.
Mineral Acids.
Ammonia.

Volatile Oils.
Acrid Essential Oils.
Metallic Salts.
Veratrine (at first).
Cantharis (at first).

Local Anæsthetics and Anodynes (ἀν, without, αἴσθησις, perception, ὀδύνη, pain),—reduce the functions of the sensory nerves until they lose the power of receiving or conducting sensations. Some act by direct depression of the end-organs in the skin, etc., others by impairing the conductivity of the sensory nerves, while some act indirectly by reducing the local circulation. The Anodynes diminish, and the Anæsthetics destroy, for a time, the sensibility of the skin or mucous membrane. The chief agents of this class are—

Local Anodynes.	*Local Anæsthetics.*
Aconite, Aconitine.	Extreme Cold, Ice.
Belladonna, Atropine.	Ether Spray.
Opium, Morphine.	Carbolic Acid.

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* In large doses.

† In small doses.

Local Anodynes.

- Carbolic Acid.
- Chloroform.
- Chloral.
- Veratrum, Veratrine.
- Volatile Oils.
- Galvanism.

Local Anæsthetics.

- Erythroxylon.
  - Cocaine.
- Hydrocyanic Acid.
- Creasote.
- Oil of Turpentine.
- Iodoform.

Cerebral Excitants,—are remedies which increase the functional activity of the cerebrum, without producing any subsequent depression, or any suspension of the cerebral functions. They act partly by increasing the action of the heart and consequently the rapidity of the circulation, partly by a direct action upon the gray matter of the brain. The chief members of this group are—

- Alcohol (at first).
- Ammoniac.
- Asafetida.
- Camphor.
- Cannabis.
- Valerian.
- Ammonia (inhaled).
- Coffee, Caffeine.
- Tea, Theine.
- Guarana, Guaranine.
- Erythroxylon, Cocaine.
- Tobacco.
- Strychnine.
- Acetic Acid (inhaled).

Deliriants excite the functions of the higher brain to such a degree as to disorder the mental faculties, producing intellectual confusion, loss of will-power, delirium and even convulsions. They are all narcotics (though all narcotics are not deliriants), and may be listed as follows, viz.—

- Alcohol.
- Belladonna.
- Stramonium.
- Hyoscyamus.
- Cannabis Indica.
- Chloral.
- Lupulus (at first).
- Opium (at first).

Cerebral Depressants lower or suspend the functions of the higher cerebrum after a preliminary stage of excitement. Under this head may be included the Narcotics, General Anæsthetics, and several of the Antispasmodics, all acting on the cells of the convolutions, at first stimulating the brain-functions, they produce after a time stupor, coma and insensibility.

The most useful of this class are the Bromides, Zinc and Caffeine, as they also diminish reflex excitability and thus secure rest of the nervous system. Some of them are decidedly dangerous, as they may paralyze the heart or the medulla and its centres of organic life before the consciousness is much disturbed; such being Chloroform, Aconite, Opium, and the irritant poisons.

Narcotics (νάρκη, stupor),—are agents which, at first excitant to the higher brain, produce profound sleep, characterized by stupor, and if the dose be sufficient, coma, insensibility and death by paralysis of the medullary centres governing respiration and other functions of organic life. They are closely related to stimulants, Opium and Alcohol being good illustrations, in the different stages of their action, of both stimulant and narcotic effects. They give us the power of lowering perception, inducing sleep and soothing the vital functions by rest, all of which are means of great therapeutical value. The chief narcotics are—

Alcohol.
Opium, Morphine.
Belladonna, Atropine.
Hyoscyamus.
Stramonium.
Cannabis Indica.
Humulus.
Chloroform, Ether, etc.
Chloral-hydrate.
Croton-chloral.

Hypnotics (ὕπνος, sleep),—are remedies which produce sleep, and in this wide sense of the term the class would include the Narcotics and the Anæsthetics, as well as those agents which may be termed *Pure Hypnotics*, which induce sleep by bringing the brain into a favorable condition therefor rather than by direct soporific action. In this sense the purest hypnotics are the Bromides, but artificial sleep may be produced by many other agents. The principal members of this class are the following:—

Methylal.
Opium, Morphine, Narceine.
Chloral-hydrate.
Croton-chloral.
Cannabis.
Cannabin Tannate.
Hyoscyamus.
Paraldehyde.
Hops.
Sulphonal.
Urethane.
Sodium Bromide.
Calcium Bromide.
Lithium Bromide.
Zinc Bromide.
Potassium Bromide.
Monobromated Camphor.
Lettuce.
Lactic Acid.
Amylene Hydrate.
General Anæsthetics.

Analgesics (ἀν, without, ἄλγος, pain), **or Anodynes** (ἀν, without, ὀδύνη, pain),—are remedies which relieve pain, either by direct depression of the centres of perception and sensation in the cerebrum, or by impairing the conductivity of the sensory nerve fibres. Opium is the most efficient of all analgesics, because it arrests the afferent impressions at every step of their track—at their formation, along the course of their conduction, and at the point where they impinge on the sensorium. *The Local Anodynes* have been described, and the list of *General Anodynes* includes the following-named agents, viz.—

Opium, Morphine.
Belladonna, Atropine.
Cannabis Indica.
Stramonium.
Hyoscyamus.
Gelsemium.
Aconite.
Chloroform, Ether, etc.
Conium.
Chloral-hydrate.
Croton-chloral.
Lupulus.

Anæsthetics (ἀν, without, αἴσθησις, perception),—are agents which destroy sensation. *Local Anæsthetics* have been described. *General Anæsthetics* are certain volatile substances, mostly belonging to the class of alcohols and ethers, which when inhaled produce complete unconsciousness and loss of sensation (anæsthesia), with lessened motor power.

Narcotics also produce anæsthesia, but the term is usually restricted to the effects of the volatile agents referred to. The principal members of this group are—

Ether (Oxide of Ethyl).
Chloroform.
Bichloride of Methylene.
Nitrous Oxide.
Bromide of Ethyl.
Bichloride of Ethylene.

Antispasmodics (ἀντί, against, σπασμός, a spasm),—are agents which prevent or allay spasm of voluntary or involuntary muscles in any portion of the organism. Some of the agents belonging to this class act by stimulation of the higher nervous centres, the coördinating power, and the circulation, as Alcohol and Ether in small doses, Camphor, Musk, Valerian, etc.; others by a depressant influence on the motor centres, as the Bromides; and still others by paralysis of the end-organs of the vaso-motor nerves, as Amyl Nitrite. A few depress all the vital functions, as Aconite, Tobacco, Lobelia, Hellebore, and Prussic Acid; and a long list stimulate the bowels to expel gaseous accumulations, namely, Asafetida, Cajuput, Valerian, Musk, Aromatic Oils, etc. They are used in convulsive affections, especially asthma and other spasmodic diseases of the respiratory organs, hysteria, chorea, angina pectoris, epilepsy, etc. The principal antispasmodics are as follows, viz.—

Alcohol.
Ether.
Chloroform.
Amyl Nitrite.
Nitrites.
Bromides.
Potassium Iodide.
Potassium Nitrate.
Arsenic.
Valerian.
Conium.
Aconite.
Lobelia.
Tobacco.
Hellebore.
Opium.
Belladonna.
Stramonium.
Hyoscyamus.
Prussic Acid.
Physostigma.
Curare.
Ammoniac.
Castor.
Musk.
Galbanum.
Sumbul.
Ipecac.
Senega.
Silver Salts.
Zinc Salts.
Copper Salts.
Asafetida.

The Cerebellum is affected by a few drugs, their action upon its several lobes producing various disturbances of equilibrium.

Alcohol is the principal agent acting upon this portion of the brain, and different products of the still seem to affect different portions of the cerebellum. For instance, intoxication by wine or beer is said to cause lateral falling, that by whiskey an inclination to fall face downwards, cider a backward tendency (Brunton). *Apomorphine* in large doses produces a tendency to move in a circle, and therefore probably affects the cerebellum or the corpora quadrigemina.

AGENTS ACTING ON THE ORGANS OF SPECIAL SENSE.

Mydriatics (μύδος, moisture),—are agents which produce dilatation of the pupil of the eye (mydriasis). Some act locally, others when given internally, and the principal ones (Atropine and its congeners) act both locally and internally, producing at the same time paralysis of the ciliary muscle resulting in temporary loss of accommodation, the eye remaining focussed for distant objects, and the intra-ocular tension being increased.

The dilating action of *Atropine* and its congeners is due to stimulation of the end-organs of the sympathetic nerve, increasing the power of the radiating muscular fibres of the iris, and also to paralysis of the end-organs of the motor oculi (3d cranial) nerve, lessening the power of the circular fibres or sphincter iridis. When administered internally the drug is carried by the circulation to the eye, acting thereon locally as if instilled directly upon the conjunctiva. The principal mydriatics are those named in the following list, viz.,—

Belladonna, Atropine.
Hyoscyamus, Hyoscyamine.
Stramonium, Daturine.
Duboisia, Duboisine.
Belladonnine (internally only).
Homatropine.
Gelsemine (locally only).
Anæsthetics (at last).
Cocaine.

Atropine, Duboisine and Homatropine are the mydriatics used by ophthalmologists.

Myotics (μύω, to close),—are agents which produce contraction of the pupil. The alkaloid of Physostigma, *Eserine*, is the chief local myotic, and the only one used in ophthalmic practice. It acts by stimulating the circular muscular fibres of the iris, at the same time contracting the ciliary muscle so that the eye is accommodated for near objects only, and diminishing intra-ocular tension; in all of which it exactly antagonizes the action of Atropine.

Muscarine, Pilocarpine and Nicotine are also local myotics, acting upon the end-organs of the oculo-motor nerve. Anæsthetics in the early stage of their action cause contraction of the pupil by lessening reflex action; later, when they begin to paralyze respiration the accumulation of venous blood irritates the centres and produces dilatation, which is a sign of failing respiratory power during anæsthesia. The myotic action of *Opium* is of central origin, probably the paralysis of the local reflex excitability. The chief myotics are as follows:

Physostigma, Eserine.
Opium, Morphine.
Pilocarpus, Pilocarpine.
Muscarine.
Gelsemine (internally).
Lobeline (internally).
Nicotine (locally).
Anæsthetics (at first).

The Sensibility of the Eye is increased by Strychnine, the field of vision becoming extended, and the vision rendered more acute. If the drug be administered hypodermically the improvement will be more marked in the eye corresponding to the side of the body where the injection was made.

The sensibility for color is affected by drugs, *Strychnine* increasing the field for blue, *Eserine* diminishing it for red and green, and *Santonin* causing objects to appear at first of a violet and afterwards of a greenish-yellow color.

Visions are produced by several drugs, their action being probably on the cerebral sight-centres (angular gyrus and occipital lobes) rather than on the eye. Alcoholic delirium is a familiar instance, while *Cannabis Indica* often causes pleasant visions, and *Sodium Salicylate* in some persons produces very disagreeable ones. *Digitalis* may produce subjective sensations of the continued presence of light. *Bromides* in excess may produce visions of such intensity that their subject remembers them distinctly for years afterwards.

Amblyopia, or impairment of vision from nerve-changes, is produced temporarily by Quinine, and may be permanently induced by Tobacco, Alcohol, Lead and Urea.

The Ear is affected by several drugs. *Strychnine* and *Morphine* increase the excitability of either the auditory nerve or the centre for hearing (superior temporo-sphenoidal convolution), making that faculty much more acute. *Quinine*, *Antipyrine* and *Salicylates* produce hyperæmia of the auditory apparatus, causing subjective noises, as humming, buzzing or ringing, which are very unpleasant. *Hydrobromic Acid* and the *Bromides*, also *Ergot*, will diminish the congestion and to a great extent will neutralize or prevent these noises.

Quinine in large doses is believed by some to have produced permanent injury of the sight and the hearing, but authentic cases of such action are extremely rare, if indeed they can be found at all. Temporary deafness is often caused by Quinine, but it usually disappears soon after the administration of the drug is stopped.

The Sense of Smell is also increased by *Strychnine*, and decreased by all cerebral depressants and by those agents which produce changes in the nasal mucous membrane, *e. g.*, *Potassium Iodide*.

The cerebral centre for this faculty is situated at the tip of the temporo-sphenoidal lobe, and the terminal branches of the olfactory nerve are distributed upon the mucous lining of the upper portion of the nasal fossæ. Strychnine probably stimulates the former, and all drugs acting upon the latter region would have more or less effect upon the power of distinguishing smells.

The Taste is not much affected by drugs except as each makes its peculiar impression on the nerves of taste, and may overcome that of another agent. Smell has much to do with taste in many instances, the expedient of holding the nose while swallowing Castor Oil being familiar to every one.

The "after-taste" of drugs is often different to their original taste; thus Bitters are said to leave a sweet after-taste, and the same is claimed for *Quinine* if given in acid solution so as to be entirely dissolved, and if washed out of the mouth with water immediately after swallowing. Substances which are excreted from the system in the saliva (as Iodides) leave a very persistent after-taste.

AGENTS ACTING ON RESPIRATION.

The Respiratory Centre is situated in the medulla oblongata, close to the termination of the calamus scriptorius. It probably consists of thoracic and diaphragmatic *Inspiratory* centres, the act of expiration being considered normally a passive one, due to the natural contraction of the walls of the air-vesicles, and the return of the diaphragm and thoracic walls to the position from which they were moved by the inspiratory effort. An *Expiratory Centre* must also exist for the initiation of forced expiration, as in the production of voice, cough, sneezing, etc. The chief *Inspiratory Nerves* are the pulmonary branches of the vagus. *The Expiratory Nerves* are the nasal branches of the fifth, the superior and inferior laryngeal, and the cutaneous nerves of the chest and abdomen.

Respiratory Stimulants exalt the function of the respiratory centre, quickening and deepening the breathing. Such agents, besides Opium in small doses, are—

Heat.
Strychnine.
Atropine.
Duboisine.
Brucine.
Thebaine.
Apomorphine.
Emetine.
Digitalis.
Zinc salts.
Copper salts.
Ammonia.
Quebracho.
Tobacco (briefly).
Alcohol (briefly).
Ether (briefly).

Strychnine also stimulates the vagus tract. *Electricity* applied to the nerve-trunks or to the inspiratory muscles, is a direct respiratory stimulant. *Veratrine*, *Eserine* and *Muscarine* stimulate the vagus terminations, quickening the respiration, but afterwards slow it by depressing the respiratory centre. *Aconite* stimulates the end-organs of the vagus when given in small doses.

Respiratory Depressants lower the activity of the respiratory centre, rendering the respirations slow and shallow. The chief agents of this class are—

Cold.
Opium.
Physostigma.
Muscarine.
Lobeline.
Gelsemium.
Aconite.
Veratrine.
Prussic Acid.
Conium.
Alcohol.
Ether.
Chloroform.
Chloral.
Saponine.
Caffeine.
Colchicine.
Nicotine.
Quinine.
Camphor.

The ten last named first excite the centre for a brief period and then depress it.

Pulmonary Sedatives diminish cough and dyspnœa by lessening the irritability of the respiratory centre or the nerves of respiration. Some act by directly depressing the respiratory centre, as those enumerated under the preceding head; others by removing some irritant from the passages, or by lessening local congestion, as the expectorant group; and others by lowering the excitability of the vagus end-organs in the lungs, and other afferent filaments throughout the respiratory tract.

Opium has the most powerful influence as a sedative to the respiratory centre, and mucilaginous or saccharine substances soothe the local irritation, hence the latter are so frequently used as vehicles for the former in cough-mixtures. *Hydrocyanic Acid* has a similar sedative action, hence the use in coughs of Prunus Virginiana and other substances containing it. *Belladonna* stimulates the respiratory centre, but at the same time lessens the excitability of the vagus terminations in the lungs, and completely arrests secretion from the bronchi. *Stramonium* acts similarly. The principal pulmonary sedatives may be enumerated as follows, viz.—

Opium.
Belladonna.
Stramonium.
Hyoscyamus.
Prussic Acid.
Amyl Nitrite.
Quebracho.
Cannabis.
Turpentine.
Ethyl Iodide.
Conium.
Tobacco.

Errhines and Sternutatories (ἐν, in, ῥιν, the nose; *sternuto*, to sneeze),—are agents which produce increased nasal secretion and sneezing, when locally applied to the mucous membrane of the nose. The first term is usually applied to substances which cause increase of the mucus without sneezing, the latter to those which invariably produce sneezing. The drugs should be in powder for application. The stimulus produced by these agents is transmitted by the nasal branches of the fifth nerve to the respiratory centre, exciting the sudden and forcible expiratory effort called sneezing; also to the vaso-motor centre, contracting the smaller vessels throughout the body and producing a general rise in the blood-pressure. The principal agents of this class are—

Tobacco, as snuff.
Ipecacuanha.
Sanguinaria.
Veratrum Album.
Euphorbium.
Sassy Bark.
Saponine.
Ginger.
Capsicum.
Hellebore.
Ammonia.
Cubebs.

The two last named may be used as simple Errhines, as the vapor of dilute Ammonia-water or the smoke of burning Cubebs do not excite sneezing generally.

Expectorants (*ex*, out of, *pectus*, the breast),—are remedies which modify the secretion of the broncho-pulmonary mucous membrane, and promote its expulsion. They may be divided into—

Nauseating Expectorants,—in large doses act mechanically by expelling the mucus in the act of vomiting, in small doses by increasing osmosis from the inflamed mucous membrane. The members of this subdivision generally increase secretion and tend to lower the blood-pressure. The chief of them are the following named:—

Antimony, Tartar Emetic.
Ipecacuanha, Emetine.
Lobelia, Lobeline.
Pilocarpus (Jaborandi).
Apomorphine.
Quebracho.
Potassium Iodide.
Alkalies.

Stimulant Expectorants,—are largely eliminated by the bronchial mucous membrane which they stimulate, altering the secretion and facilitating expectoration. These remedies generally diminish secretion and increase blood-pressure. They are—

Acids.
Ammonium Chloride, and Carbonate.
Ammoniac.
Benzoin and Benzoic Acid.
Balsams of Peru and Tolu.
Wood Tar, and Tar.
Oleum Pini Sylvestris.
Turpentine.
Squill.
Garlic.
Onion.
Nux Vomica, Strychnine.
Senega, Saponin.
Sulphur.
Liquorice.
Saccharine Substances.

Besides the above many other remedies may act as expectorants, some by relieving bronchial spasm, as Opium, Stramonium and Tobacco,—others by soothing the irritable respiratory centre, as Opium and Chloral,—and the ciliary excitants by reflex action through their impression on the nerves of the mouth.

Ciliary Excitants,—promote the expectoration of bronchial mucus by their reflex excitation of the tracheal and bronchial cilia, when dissolved in the mouth. Gum Acacia, Ammonium Chloride, Potassium Chlorate, and native Chloride of Sodium have this action.

AGENTS ACTING ON THE CIRCULATION.

Cardiac Stimulants rapidly increase the force and frequency of the pulse in depressed conditions of the cardiac apparatus. One of the most useful agents of this class is *Alcohol* in some form, its action being largely due to a reflex influence excited through the nerves of the mouth and stomach. It should therefore be given in but slightly diluted form, and in small quantities frequently. *Ether* is next in value and still more rapid in action, and *Heat* is one of the most powerful and available of the class. *Ammonia* has an energetic action as a stimulant to the vaso-motor centre, as well as a reflex one upon the heart similar to that of Alcohol. The list of cardiac stimulants includes the following, viz.—

Alcohol.
Ammonia.
Atropine.
Nitroglycerin.
Counter-irritation.
Cocaine.
Ether.
Chloroform.
Heat.
Continuous Galvanic Current.
Sparteine.
Camphor.
Aromatic Oils.
Turpentine.
Opium, and Morphine, in small doses.

Cardiac Tonics, when given in moderate doses, stimulate the cardiac muscle, slowing and strengthening its contractions. In large doses they are apt to produce irregular action of the heart, and some of them have more or less of a tendency to cause sudden death by syncope if pushed to any great extent. The most important of these agents are—

Digitalis.
Convallaria.
Cimicifuga.
Squill.
Erythrophlœum.
Caffeine.
Strophanthus.
Strychnine.
Helleboreïn.
Adonis vernalis.

Digitalis acts partly by stimulation of the vagus end-organs in the heart, thus increasing cardiac inhibition, and partly by direct stimulation of the cardiac centre in the medulla, as well as by a direct influence on the heart muscle itself. *Convallaria*, *Erythrophlœum*, *Squill* and *Cimicifuga* act similarly but less powerfully, and are correspondingly safer. *Strophanthus* is still better, as it does not affect the vessels, and therefore does not raise the blood-pressure.

Cardiac Sedatives lessen the force and the frequency of the heart's action and are used to control palpitation of that organ, and to slow the pulse in febrile conditions in sthenic subjects, especially when local inflammation is the exciting cause. The chief cardiac sedatives are—

Aconite.
Antimony.
Veratrum Viride.
Muscarine.
Pilocarpine.
Digitalis.
Senega, Saponin.
Prussic Acid.
Potassium Salts.
Cold.

Aconite, Veratrum, Muscarine, Pilocarpine, Saponin and *Prussic Acid* are direct cardiac poisons, depressing the heart muscle and the cardiac motor ganglia; *Muscarine* and *Pilocarpine* also stimulate the inhibitory ganglia; *Digitalis* stimulates the vagus centre and the cardiac muscle, and acts as a sedative in many cases by slowing the rate and giving it a regular rhythm. *Aconite* is said by some authorities to relax inhibition, by others to stimulate the vagus centre. *Antimony* depresses the motor ganglia, *Potassium* the cardiac muscle.

Vascular Stimulants produce dilatation of the peripheral vessels, and increase the rapidity of the circulation, thus equalizing the blood-pressure and preventing internal congestions. The most useful are *Alcohol* and *Ether*, as they stimulate the action of the heart simultaneously with the vascular dilatation. The chief members of this group are—

Alcohol.
Ether.
Nitrous Ether.
Nitro-glycerin.
Amyl Nitrite.
Liq. Ammonii Acetatis.
Opium, as Dover's Powder.
Heat, as Poultices, etc.

The dilating action of *Amyl Nitrite* and other Nitrites is due to weakening either of the muscular walls of the arterioles or to paralysis of the vaso-motor ganglia in them. *Alcohol, Ether* and *Opium* probably depress the vaso-motor centre.

Vascular Tonics produce increased contraction of the arterioles and consequently increased blood-pressure. The most important are—

Digitalis.
Squill.
Iron.
Ergot.
Opium, in small doses.
Strychnine.
Lead and Silver.

These agents act upon the local vaso-motor mechanism in the walls of the vessels, which are also directly stimulated by cold produced in any way, as by Ether spray, or evaporating lotions containing Alcohol, Vinegar or Ammonium Chloride.

Vascular Sedatives increase the contraction of the vessels and lessen the circulation through them. They are employed to check hemorrhage and to cut short a local inflammation. The chief agents belonging to this group are—

Cold.
Ergot.
Hamamelis.
Digitalis.
Opium.
Acetate of Lead.

AGENTS ACTING ON THE DIGESTIVE SYSTEM.

Dentifrices (*dens*, a tooth, *frico*, to rub),—are medicated powders or pastes employed to cleanse the teeth and gums. *Chalk* is the basis generally used, for its mechanical action and its alkaline quality. Antiseptics, as *Borax, Quinine, Carbolic Acid,* etc., should also be employed so as to prevent the acid fermentation of food products between the teeth and the consequent decay of the dentine. *Tincture of Myrrh* is an excellent ingredient, being an aromatic local stimulant and disinfectant.

Many drugs affect the teeth injuriously, such being the Mineral Acids, Persalts of Iron and Alum. The first two should be taken through a glass tube, and the mouth should be afterwards rinsed with a weak alkaline wash. Opium, Chloral, Cocaine, Carbolic Acid, Creasote, Chlorate of Potassium and Aconite are the agents used as local anodynes in toothache from caries exposing a nerve filament. Chloral should never be used for this purpose, as in solution sufficiently strong to be of any service, it will cause sloughing of the gum, especially if injected thereinto with a hypodermic syringe, as is frequently done by ignorant dentists.

Sialogogues (*σίαλον*, saliva, *ἄγω*, to carry off),—are agents which increase the secretion and flow of saliva and buccal mucus, either by reflex action from the local irritation produced when anything is taken into the mouth, or by stimulating the glands during their elimination. The principal sialogogues are divided into two classes, the first (topical) acting by reflex stimulation, the second (general) acting through their systemic influence on the glands or their secretory nerves. They are as follows:—

Topical Sialogogues.	*General Sialogogues.*
Acids and Alkalies.	Pilocarpus (Jaborandi).
Ether, Chloroform, etc.	Muscarine.
Mustard, Ginger.	Physostigma.
Pyrethrum, Mezereon.	Mercurials.
Tobacco, Cubebs.	Iodine compounds.
Capsicum, Rhubarb.	Antimonials.
Horse-radish.	Tobacco, Ipecac.

Antisialics (*ἀντί*, against, *σίαλον*, saliva),—are remedies which diminish the secretions of the salivary glands. *Atropine* is the principal agent of this group, acting by paralyzing the terminations of the nerves of secretion. *Physostigma* counteracts this paralysis, but in large doses acts as an antisialic by lessening the blood supply to the glands. *Opium* diminishes the reflex excitability of the reflex centre and also diminishes the secretion. Others acting locally are—

Borax.
Potassium Chlorate.
Soda.
Lime.
Lithia.
Magnesia.
Insipid or nauseous articles of food or medicine.

Refrigerants (*refrigero*, to cool),—are remedies which allay thirst and impart a sensation of coolness. They include the Vegetable Acids, the Mineral Acids (greatly diluted), Ice, Water, if cold, Effervescing drinks, Fruit juices, and many diaphoretics.

Gastric Tonics or Stomachics,—are agents which increase the appetite and promote gastric digestion. They include a number of substances, dietetic and medicinal, some acting by stimulation of the production of gastric juice, others by stimulating the local circulation, and several by exciting the activity of the nervo-muscular apparatus of the stomach.

The first indication is met by the use of dilute alkaline solutions before meals,—the second by administering any of the pungent carminatives, as the Aromatic Oils, Pepper, Mustard, etc., or by Alcohol and Ether in small doses, or by the Aromatic Bitters, as Gentian, Orange, etc., or the simple bitters, as Calumba;—while the third desideratum is secured by the use of such agents as Nux Vomica, Hydrastis, Arsenic, the dilute Mineral Acids, and the Volatile Oils. *Adjuvants* to gastric digestion are the various digestion-ferments, Pepsin, Ingluvin and dilute HCl Acid, which may be used to supplement the gastric juice when deficient in quantity or quality.

Acids,—considered therapeutically and physiologically, are medicines which in concentrated form act usually as caustics, and when given in medicinal doses internally check the secretions of organs producing acid secretions with which they come in contact, and increase those of organs producing alkaline secretions. Thus a dilute acid given before meals will check the production of the acid gastric juice, but will stimulate that of the alkaline pancreatic juice.

The chief members of this group are the following, which should be given in very dilute form :—

Acidum Aceticum.
Acidum Citricum.
Acidum Benzoicum.
Acidum Hydrochloricum.
Acidum Nitricum.
Acidum Phosphoricum.
Acidum Sulphuricum.
Acidum Nitro-hydrochloricum.

Ant-acids or Alkalies,—from the same stand-point, are remedies which neutralize acids, check alkaline secretions and stimulate acid secretions, when in contact with the ducts of the organs producing them. Thus a dilute alkali given before meals will stimulate the production of the acid gastric juice, and if applied to the mouth of the pancreatic duct will check the secretion of the alkaline pancreatic juice. The principal articles which belong to this group are the following, which should always be administered in dilute solution :—

Liquor Potassæ, Liquor Sodæ.
Carbonates and Bicarbonates of Potassium, Sodium, Lithium, Magnesium and Ammonium.
Calcined Magnesia (Magnesia).
Lime-water, Chalk.
Aromatic Spirit of Ammonia.

Potassium Acetate.
Potassium Citrate.
Potassium Tartrate.
Potassium Bitartrate.
Sodium Acetate.
Sodium Citrate.
Lithium Citrate.

The substances in the first list are direct antacids, lessening the acidity in the stomach, and many of them also acting as remote antacids, lessening the acidity of the urine, as *Potash* and *Soda*, and their Carbonates and Bicarbonates. *Ammonia* and its Carbonates after absorption are eliminated as urea, and do not lessen the acidity of the urine. The salts in the second list are remote antacids, do not lessen acidity in the stomach but do that of the urine, being oxidized in the blood and excreted as Carbonates.

Emetics (ἐμέω, to vomit),—are agents which produce vomiting. They may be subdivided into two groups, (1) *Local Emetics*, or those which act by irritating the end-organs of the gastric, pharyngeal or œsophageal nerves, and (2) *General or Systemic Emetics*, which act through the medium of the circulation. Both these classes produce the emetic action by irritation of the vomiting centre in the medulla, the first by reflex, the second by direct stimulation. The principal emetics are the following named :—

Local Emetics.

Alum, Mustard, Salt.
Ammonium Carbonate.
Zinc and Copper Sulphates.
Subsulphate of Mercury.
Tepid Water, in quantity.
Vegetable Bitters, as Quassia, in strong infusions.

General Emetics.

Ipecacuanha.
  Emetine.
Apomorphine.
Tartar Emetic.
Veratrine.
Senega.
Squill.

Tartar Emetic, *Ipecacuanha* and probably *Apomorphine*, act locally as well as systemically, for if injected subcutaneously they are excreted by the stomach in part, thus irritating the gastric nerves as well as the vomiting centre. *Pilocarpus* is a local emetic, and *Digitalis* and its congeners, also *Muscarine*, are systemic emetics, but none of these agents are used medicinally for that purpose. *Opium*, *Morphine* and *Codeine* usually produce emesis as one of their after-effects.

Anti-emetics,—are agents which diminish nausea and vomiting, some by a local sedative action upon the end-organs of the gastric nerves, others by reducing the irritability of the vomiting centre in the medulla. The most efficient of the local sedatives is *Ice*, swallowed in small pieces. Astringents are very useful when there is congestion of the gastric mucous membrane, as in the vomiting of alcoholism and phthisis, where *Silver Nitrate* and *Alum* are respectively effective. The most important anti-emetics are the following, viz. :—

Local Gastric Sedatives.

Alcohol.
Alum.
Arsenic.
Belladonna.
Bismuth.
Carbonic Acid.
Cerium Oxalate.
Chloroform.
Carbolic Acid.
Potassium Nitrate.
Creasote.
Ether.
Ice.
Opium.
Prussic Acid.
Silver Nitrate.
Calomel } small
Ipecac } doses.
Hot Water.
Cocaine.

General Sedatives.

Opium.
  Morphine.
Prussic Acid.
Bromides.
Chloral.
Nitro-glycerin.
Food.
Alcohol.
Amyl Nitrite.

Vomiting being set up by irritation of many afferent nerves from various regions of the body, or by impulses from the brain excited through impressions on the nerves of special sense, the measures for combating it are very diversified. (Compare the title VOMITING in Part III.)

Gastric Pain is best treated by such local sedatives as Bismuth, Hydrocyanic Acid, or small doses of Morphine, Arsenic and Belladonna. Cocaine is one of the most efficient agents of this class, in 5 to 6 minim doses of a 4 per cent. solution, every hour. As its general action is opposed to that of Opium, Bromides, etc., it must act locally, and therefore should be given by the mouth.

Carminatives (*carmino*, to soothe),—aid the expulsion of gas from the stomach and intestines, by increasing peristalsis, stimulating the circulation, and relaxing the cardiac and pyloric orifices of the stomach. They also act as diffusible stimulants, both of the bodily and mental faculties. The principal carminatives belong to the aromatic oils, alcohols or ethers, and are embraced in the following list :—

Asafetida.
Capsicum.
Cardamom.
Chloroform.
Mustard.
Pepper.
Spirits
Oil of Anise.
Oil of Eucalyptus.
Oil of Fennel.
Oil of Peppermint.
Oil of Spearmint.

Ether.
Fennel.
Ginger.
Horse-radish.
Mace.
Oil of Cajuput.
Oil of Caraway.
Oil of Cinnamon.
Oil of Cloves.
Oil of Coriander.
Oil of Nutmeg.
Oil of Pimento.
Oil of Valerian.
Camphor.
Serpentaria.

Cathartics or Purgatives (*καθαιρω*, *purgo*, to cleanse),—are agents which increase or hasten the intestinal evacuations. According to their respective degrees and direction of action they are subdivided into several groups, as follows:—

Laxatives (*laxo*, to loose), *or Aperients* (*aperio*, to open),—include those which excite moderate peristalsis, and produce softened motions without irritation. Sulphur is the typical laxative.

Simple Purgatives,—increase peristalsis actively, and stimulate the secretions of the intestinal glands, producing one or more copious and semifluid motions with some irritation and griping. Senna is the type of this group.

Drastic Purgatives (*δραω*, to act),—act still more intensely, producing violent peristalsis and watery stools, with much griping pain, tenesmus and borborygmi. They irritate the intestinal mucous membrane, cause exosmosis of serum from its vessels, and in large dose set up inflammation and symptoms of irritant poisoning. Jalap is a typical drastic.

Saline Purgatives,—consist of the neutral salts of metals of the alkalies or alkaline earths. They stimulate the glands, increase peristalsis, promote osmosis and cause free watery evacuations. Magnesium Sulphate is a typical saline.

Hydragogue Purgatives (*ὕδωρ*, water, *ἀγω*, to bring away),—include the most active of the drastic and saline groups, those which remove a large quantity of water from the vessels. Elaterium is a typical hydragogue.

Cholagogue Purgatives (*χολή*, bile, *ἄγω*, to bring away),—are those agents which stimulate the flow of bile and produce free purgation at the same time, the stools being green-colored, or "bilious," and liquid. Podophyllin is the type of this group.

The principal Cathartics are the following named:—

Laxatives.

Sulphur.
Magnesia.
Cassia.
Manna.
Figs.
Prunes.
Tamarinds.
Honey.
Olive Oil.
Cascara Sagrada.
Physostigma.
Ergot.
Belladonna.
Stramonium.

Laxatives.

Hyoscyamus.
Soap.
Almond Oil.
Taraxacum.
Glycerin.
Oatmeal.
Bran Biscuit.
Brown Bread.

Simple Purgatives.

Senna.
Aloes.
Rhubarb.
Castor Oil.

Simple Purgatives.

Rhamnus Frangula.
Ox-gall.
Calomel.
Small doses of drastics, salines or cholagogues.

Saline Purgatives.

Magnesium Sulphate.
Magnesium Citrate.
Potassium Sulphate.
Potassium Tartrate.
Potassium Bitartrate.
Sodium Sulphate.
Sodium Phosphate.

Saline Purgatives.
Sodium Chloride.
Pot. et Sodium Tartrate.
Manganese Sulphate.

Drastics.
Jalap.
Colocynth.
Elaterium.
Scammony.

Drastics
Gamboge.
Croton Oil.
Cathartic Acid, hypodermically.

Hydragogues.
Elaterium.
Gamboge.
Potas. Bitartrate.

Hydragogues.
Croton Oil.
Salines in large doses.

Cholagogues.
Mercurials.
Aloes.
Rhubarb.
Euonymin.
Podophyllin.
Iridin.

Intestinal Astringents, contract the walls of the intestinal vessels, diminishing the exudation therefrom, and lessening the fluidity of the fæcal discharges. The more powerful members of this group have also a *constringing* action on the intestinal mucous membrane. The principal agents of this class are the following:—

Astringents.
Phosphoric Acid. }
Nitric Acid. } Diluted.
Sulphuric Acid. }
Acetic Acid. }
Acetate of Lead.
Nitrate of Silver.

Constringents.
Tannic Acid.
Vegetable Astringents.
Alum.
Oxide of Zinc.
Sulphate of Copper.
Persalts of Iron.

Hepatic Stimulants and Cholagogues (χόλη, bile, ἄγω, to bring away),—are two groups of agents acting upon the biliary secretion, the first-named increasing the functional activity of the liver and the amount of bile formed, the second removing the bile from the duodenum and preventing its reabsorption into the portal circulation. Some hepatic stimulants are also cholagogues, others are not, while cholagogues proper generally act as hepatic stimulants by carrying off the bile and so indirectly urging the liver to secrete more. The discovery of the entero-hepatic circulation of bile has cleared up many of the discrepancies formerly existing with regard to the action of drugs upon this gland and its secretion. The following list includes the principal drugs belonging to both groups:—

Hepatic Stimulants.
Aloes.
Podophyllin.
Mercuric Chloride.
Sodium Benzoate
  Phosphate.
  Salicylate
Nitro-hydrochloric Acid.
Euonymin.
Iridin.
Phytolaccin.
Sanguinarin.
Antimony.
Arsenic.
Ipecacuanha.
Colchicine.
Colocynth.
Rhubarb.
Potassium Sulphate.
Sodium Sulphate.
  Bicarbonate.
Ammonium Benzoate.
  Chloride.
Nitric Acid (dilute).
Benzoic Acid.
Baptisin.
Hydrastin.
Juglandin.
Leptandrin.
Jalapin.
Scammony.
Guaiac.
Sarsaparilla.
Physostigma.
Rochelle Salt.

Cholagogues.
Aloes.
Podophyllin.
Mercurous Chloride.
Pil. Hydrargyri.
Mercury with Chalk.
Sodium Phosphate.
  Sulphate.
Potassium Sulphate.
Colchicum.
Colocynth.
Rhubarb.
Arsenic.
Euonymin.
Scammony.
Baptisin.
Jalapin.
Iridin.

Those in the first column are the most powerful of the stimulant group, the second column including the less efficient agents. To secure the best cholagogue effect it is advisable to combine an hepatic stimulant with an intestinal stimulant which shall produce increased secretion from the intestinal mucous membrane and excite peristalsis.

The Glycogenic Function of the liver, and the production of urea are stimulated by the following-named drugs :—

Increasing Glycogen.	*Increasing Urea.*	
Nitrite of Amyl.	Arsenic.	Iron.
Sodium Bicarbonate.	Antimony.	Phosphorus.
Nitro-hydrochloric Acid.	Ammonium Chloride.	

Hepatic Depressants are agents which lower the functional activity of the liver, reducing the quantity of bile secreted, and lessening the production of glycogen and urea. They are as follows, viz. :—

Lessening Bile.	*Diminishing Glycogen.*	*Lessening Urea.*
Opium. Morphine.	Opium.	Opium.
Many Purgatives.	Morphine. Codeine.	Morphine.
Acetate of Lead.	Phosphorus.	Colchicum.
Quinine (?).	Arsenic.	Alcohol.
Alcohol (?).	Antimony.	Quinine.

Many purgatives act as hepatic depressants and diminish the secretion of bile by lowering the blood-pressure in the liver, and by carrying off the materials from which bile might be formed.

Pancreatic Stimulation may be obtained by the administration of *Ether*, or by Galvanism of the gland itself. The secretion is depressed by *Atropine* and by inducing nausea and vomiting.

Anthelmintics (ἀντί, against, ἕλμινς, a worm),—are agents which destroy (vermicides) or cause the expulsion of intestinal worms (vermifuges). The chief vermifuges are Castor Oil, Jalap and Scammony, while the vermicides may be enumerated as follows, viz. :—

Thread-Worms. (*Oxyuris Vermicularis.*)	*Round-Worms* (*Ascaris Lumbricoides.*)	*Tape-Worms* (*Tæniæ, etc.*)
Alum.	Santonica.	Filix Mas.
Sulphate of Iron.	Santonin.	Kamala.
Lime-water.	Spigelia.	Kousso.
Quassia.	Chenopodium.	Granatum.
Eucalyptol.	Azedarach.	Pelletierine.
Sodium Chloride.	Senna. } with the	Pepo.
Tannin.	Calomel. } above.	Turpentine.
Veg. Astringents.		Chloroform.

The substances enumerated in the first column are all used locally by enema. *Adjuncts* to these remedies are such agents as prevent the excessive secretion of intestinal mucus, which affords a nidus for the worms. Such are Bitter Tonics and preparations of Iron, also Ammonium Chloride and Sodium Chloride.

AGENTS ACTING ON METABOLISM.

Restoratives,—are agents which promote constructive metamorphosis, including the Foods, Hæmatics, and Tonics, as well as many agents called Stimulants in other classifications.

Foods,—are substances which, when introduced into the body, supply material to renew some structure or to maintain some vital process; being distinguished from medicines in that the latter modify some vital action but supply no material to sustain such.

The food of man is derived from all three of the kingdoms of nature, viz., the mineral, vegetable and animal, and includes many substances treated of in the Materia Medica, as Oils and Fats, Sugar, Starch, Gum, Alcohol, Beverages like Coffee and Tea, Water, Phosphate of Lime, Chloride of Sodium, etc.

Hæmatics (*αἷμα*, the blood),—are medicines which augment the quantity of hæmatin in the blood, and thus restore the quality of that tissue by enriching its red corpuscles. They consist chiefly of Iron and Manganese and their compounds.

Tonics (*τόνος*, tension),—are agents which improve the tone of the tissues on which they have specific action, restoring energy and strength to debilitated subjects, by a scarcely perceptible stimulation of all the vital functions, their effects being apparent in an increased vigor of the entire system. The chief tonics are enumerated in the foregoing lists under the heads of the organs or tissues particularly affected by them. (Compare the titles STIMULANTS, RESPIRATORY STIMULANTS, CARDIAC TONICS, VASCULAR TONICS, GASTRIC TONICS, etc.)

The most typical medicinal agents which impart a general sense of tone and strength are Strychnine, Quinine, Iron and Vegetable Bitters. Those especially acting upon the stomach are Arsenic, Bismuth, Cinchona, Hydrastis and Nux Vomica,—on the spinal cord and general circulation, Strychnine,—on the heart, Digitalis, Squill, Convallaria and Cimicifuga,—on the nervous system, Phosphorus, Quinine and the Valerianates,—on muscular tissue, Tannin,—on the blood, Iron, Manganese, Cod-liver Oil, and other fats.

Alteratives,—are certain remedies which *alter* the course of morbid conditions in some way not yet understood, perhaps by promoting metabolism. They certainly modify the nutritive processes and thereby cure many diseases of chronic type. *Mercury* and *Iodine* are the most prominent agents of this class, the former being endowed with the power of breaking up newly deposited fibrin, and disorganizing syphilitic deposits, while the latter acts energetically upon the lymphatic system and promotes absorption. *Arsenic* also is almost specific in many chronic skin affections, and has remarkable power over chronic pulmonary consolidations, probably producing fatty degeneration and softening of the effusion, so that it may be absorbed or expectorated. The principal alteratives are:—

Arsenic.
Antimony.
Aurum.
Mezereum.
Sulphur.
Sulphides.
Mercury.
Colchicum.
Guaiacum.
Sanguinaria.
Xanthoxylum.
Calcium Chloride.
Iodine.
Iodides.
Stillingia.
Sarsaparilla.
Cod-liver Oil.
Phosphorus.

Certain therapeutists of laboratory type have, of late years, seen fit to denounce the term *Alterative* as "a cloak for ignorance," but have never been able to present a better designation for a class of agents whose effects are among the most thoroughly established of clinical facts.

A subdivision may be made of the *Resolvents* or *Discutients* (*resolvo*, to unbind, *discutio*, to dissipate),—agents which promote the absorption of inflammatory products or other materials of morbid origin, apparently by stimulation of the lymphatic system. They include Mercury, Arsenic, Iodine and Cadmium, as well as such local measures as Poulticing and Counter-irritation.

The Destructive Metamorphosis of the tissues is promoted by a number of agents, most of which are classed as *Alteratives* or as *Astringents*, the most important of which are the following-named :—

Alkalies.
Vegetable Acids.
Metals and their salts.
Colchicum.
Sulphides and Iodides.
Sarsaparilla.
Stillingia.
Xanthoxylum.
Tannic and Gallic Acids, and substances containing them.

On the other hand, Metabolism may be diminished by many substances, the following-named being the chief ones,—

Alcohol.
Glycerin.
Oils and Fats.
Salicin.
Salicylates.
Quinine.
Resorcin.
Chinoline.
Kairine.

Antipyretics (ἀντί, against, πυρετὸς, fever), are agents or measures which reduce the body-temperature when abnormally high. This may be done by two principal methods, and the agents doing either accomplish the result by different actions, as follows, viz.—

By Lessening the Production of Heat, by
1. Diminishing tissue-change.
2. Reducing the circulation.

or by

Promoting the Loss of Heat, by
3. Dilating cutaneous vessels, and producing increased radiation.
4. Producing perspiration, and its evaporation.
5. Abstracting heat from the body

The following list contains nearly all the antipyretics, the number following each referring to its proper method of action, as enumerated above :—

Quinine.^{1}
Quinidine.^{1}
Cinchonine.^{1}
Cinchonidine.^{1}
Berberine.^{1}
Chinoline.^{1}
Resorcin.^{1}
Kairine.^{1,4}
Kairoline.^{1,4}
Antipyrine.^{1,4}
Acetphenitidin.^{1,4}
Aconite.^{2}
Antimonials.^{2,4}
Veratrine.^{2}
Colchicum.^{2}

Benzoic Acid.[1]
Carbolic Acid.[1]
Picric Acid.[1]
Salicin.[1]
Salicylic Acid.[1]
Sodium Salicylate.[1,4]
Quinine Salicylate.[1]
Methyl Salicylate.[1]
(Oil of Gaultheria.)
Trimethylamine.[2]
Antifebrin.[1,4]

Hydroquinone.[1]
Thallin,[1,4]
Pyrocatechin.[1]
Pheno-resorcin.[1]
Camphor.[1]
Eucalyptol.[1]
Thymol.[1]
Other Essential Oils.[1]
Alcohol,[1,3]
Digitalis.[2]
Salol.[1]

Leeching.[2]
Cupping.[2]
Blistering.[2]
Poulticing.[2]
Nitrous Ether.[3,4]
Dover's Powder.[4]
Cold Bath.[5]
Cold Drinks.[5]
Ice to Surface.[5]
Cold Sponging.[5]
Wet Packing.[5]

Purgation and *Venesection* produce antipyretic results, but their mode of action is doubtful (Brunton).

Antiphlogistics (*ἀντί*, against, *φλεγω*, to burn),—are measures and medicines which are supposed to have some specific power in reducing inflammation. The term is becoming obsolete, but frequent references are seen yet to the influence of Mercury and Opium in inflammations of serous membranes, Antimony and Aconite in inflammations of the respiratory tract and organs, and to the power of Veratrum Viride over puerperal metritis. The chief antiphlogistics are the following:—

Aconite.
Veratrum Viride.
Tartar Emetic.
Mercury.
Opium.
Gelsemium.

Digitalis.
Ergot.
Ipecacuanha.
Potassium Nitrate.
Rest, recumbent position.

Venesection.
Local Depletion.
Purgation.
Counter-irritation.
Cold.

Antiperiodics are remedies which affect certain periodical febrile diseases, lessening the severity of their paroxysms or preventing their return. They act probably by arresting the development in the blood of successive crops of pathogenic organisms, upon which the disorders are supposed to depend. The principal antiperiodics are:

Cinchona Bark and its Alkaloids.
Bebeeru Bark and its Alkaloid.
Salicin, Salicylic Acid, Salicylates.

Arsenic.
Eucalyptol.
Iodine.

AGENTS ACTING UPON EXCRETION.

Diuretics (*διούρησις*, urination),—are remedies which increase the renal secretion. They may act in several ways, namely:—

1. By raising the general blood-pressure by contraction of efferent vessels or vessels in other regions of the body.
2. By dilating the renal arteries and increasing the renal blood-supply, raising the pressure in the glomeruli.
3. By stimulating the secreting nerves or cells of the kidney.
4. By simply washing out the kidneys, as by *Water* in quantity.

The following list contains the most important agents of this class, which are usually subdivided into the two groups indicated by the subtitles. The numbers refer to the action of the drug in the above synopsis:

Refrigerant Diuretics.

Potassium Acetate.[3]
Potassium Bitartrate.[3]
Potassium Citrate.[3]
Potassium Chlorate.[3]
Potassium Nitrate.[3]
Sodium Acetate.[3]
Calomel.[1]
Digitalis.[1]
Erythrophlœum.[1]
Caffeine.[3]
Broom.[3]
Squill.[1,2]
Nitrites.[2]
Colchicum.[3]
Strychnine.[1]
Stigmata Maidis.[1,2]

Stimulant Diuretics.

Alcohol.[2]
Cantharides.[3]
Turpentine.[3]
Juniper.[3]
Savine.[3]
Copaiba.[3]
Cubebs.[3]
Pepper.[3]
Matico.[3]
Kava.[3]
Guaiac.[3]
Parsley.[3]
Taraxacum.[3]
Jaborandi.[3]
Dulcamara.[3]
Bryonia.[3]

Gin.[2]
Carrot.[3]
Fennel.[3]
Mustard.[3]
Asparagus.[3]
Uva Ursi.[3]
Buchu.[3]
Sarsaparilla.[3]
Pareira.[3]
Chimaphila.[3]
Santonica.[3]
Lobelia.[3]
Aconite,[3]
Tobacco.[1,3]
Volatile Oils.[3]
Oleo-resins.[3]

Diuretics are employed for the following purposes, namely, (1) to remove the excess of fluid in dropsies,—(2) to hasten the elimination of waste products and other poisonous substances from the blood,—(3) to dilute the urine. In—

Cardiac Dropsy,—or other dropsies due to venous congestion, the best diuretics are those which act on the general vascular system, as Digitalis, Squill, etc. Calomel is very efficient here.

Dropsy from Renal Disease,—Broom, Nitrous Ether, Oil of Juniper, Digitalis and Squill are the most reliable diuretics in the order named.

Hepatic Dropsy,—Copaiba is considered especially suitable. In this and the previous form a little Pil. Hydrargyri occasionally often aids the diuretic action of other agents.

To Eliminate Solids,—Potassium Nitrate and Bitartrate, Turpentine, Juniper, Caffeine, etc., are the most efficient. [Compare ANTILITHICS.]

To Dilute the Urine,—Water is the best diuretic, and the most efficient form is Distilled Water acidified with Carbonic Acid Gas.

Renal Depressants,—are such agents as directly diminish the activity of the renal cells, and lessen or suspend the secretion of urine. Morphine, Quinine and Ergot act in this way through the circulation, and Digitalis, instead of acting as a diuretic, may arrest the renal circulation by stimulating the vaso-moto centre and thus by contracting the vessels may stop the secretion altogether (Brunton). The same is true of Caffeine and Strychnine, hence it is well to combine these with other diuretics (Nitrous Ether, Alcohol), which dilate the renal arteries.

Alkalinizers of the Urine,—are agents which produce an alkaline reaction to the urine when taken internally. They include the alkalies, particularly Potassium and Lithium salts, but excepting Ammonia, which is broken up in the organism. Sodium salts, being partly excreted by the bile and the bronchial mucus, and partly locked up in the system as the neutral chloride, while the Urate of Sodium is insoluble, are not as efficient in this regard as are other alkalies. Fruits, milk and fish also act in the same manner by means of the salts which they convey into the economy.

Acidifiers of the Urine,—are Benzoic and Salicylic Acids, and Vegetable Acids in excess, also excess of proteids, sugar and starch in the food, and certain wines and spirits. The Mineral Acids have little or no influence on the acidity of the urine, being excreted as neutral sulphates, chlorides, phosphates, etc.

Vesical Sedatives,—are substances which lessen irritability of the bladder, relieving pain and decreasing the desire to micturate. Opium, Belladonna, Hyoscyamus, Stigmata Maidis, Cannabis, etc., lessen the irritability of the nerves, Carbonate of Lime that due to the presence of calculi,—and mucilaginous drinks, such as Barley-water or Linseed tea, also astringents like Buchu, Uva Ursi, Pareira, etc., diminish the irritation due to chronic cystitis, and antiseptics as Copaiba and Cubebs, also act in like manner.

Vesical Tonics,—increase the contractile power of the muscular fibres in the wall of the bladder. Cantharides, Potassium Bromide, Strychnine and Belladonna are the most prominent members of this class.

Urinary Sedatives and Astringents,—act sedatively upon the whole extent of the urinary tract through the medium of the urine charged with them when administered internally. Some of the members of this class may be administered locally, but only to the urethral and vesical mucous membranes, which are accessible to direct local medication.

Instances of the application of these agents are in the use of Potassium and Lithium Salts to diminish the acidity of the secretion,—Cubebs, Copaiba and Sandal-wood Oil as antiseptics and astringents,—and urethral injections of Alum, Acetates of Zinc and Lead, Boracic Acid, Chloral and Zinc Chlorides, etc., for a simple purpose. *Copaiba* is one of the most efficient agents for rendering the urine antiseptic, and should be more employed in cystitis and urethritis than it is. *Oil of Eucalyptus* is nearly as efficient, and *Stigmata Maidis* (Corn Silk), in tincture, is beginning to be well thought of for a general alterative influence on the urinary tract.

Antilithics or Lithontriptics (*ἀντί*, against, *λίθος*, a stone, *τρίβω*, to wear down),—are agents supposed to prevent the formation of concretions in the excretory passages (antilithics) or to dissolve them when formed (lithontriptics). The terms are generally restricted to remedies affecting the urinary calculi, but those directed against the biliary form are included in this arrangement for the sake of consistent classification. The chief agents coming under this title are—

Biliary Calculi.	*Uric Acid or Urates.*
Ether and Turpentine.	Distilled Water.
(Durande's Solvent.)	Alkalies, Potash or Lithia.
Sodium Bicarbonate.	Potassium Salts.
Sodium Salicylate.	Lithium Salts.
Sodium Phosphate.	Potassium Tartraborate.
Castile Soap.	Magnesium Citroborate.
Alkaline Waters, especially Vichy.	

Oxalate of Calcium.
Dilute Nitro-Hydrochloric Acid.
Carbonated Water.
Lactic Acid (for digestion).

Phosphatic Calculi.
Ammonium Benzoate.
Benzoic Acid.
Dilute Nitric Acid.

There is probably little or no solvent value to the agents recommended for biliary calculi. In the case of Uric Acid the administration of Potash or Lithia is based on their combining with the acid forming the calculus, and forming Urate of Potassium or Lithium, which salts are more soluble than the Uric Acid itself.

Diluents (*diluo*, to dilute),—are agents which, after their absorption dilute the excretory fluids and enable the latter to hold more solid material in suspension. *Water* is the one true diluent, whatever form it may be disguised in, as teas, weak fluid foods, acid drinks, etc.

Diaphoretics and Sudorifics (*διαφορέω*, to carry through; *sudor*, sweat, *facio*, to make),—are remedies which increase the action of the skin and promote the secretion of sweat. When they act energetically, so that the perspiration stands in beads upon the surface they are known as *Sudorifics*. They may be subdivided into the following groups, viz.—

1. *Simple Diaphoretics*, which enter the circulation and are eliminated by the sudoriferous glands, which they stimulate to increased action.
2. *Nauseating Diaphoretics*, which produce relaxation and the dilatation of the superficial capillaries.
3. *Refrigerant Diaphoretics*, which reduce the circulation, at the same time acting directly on the sweat centres in the spinal cord and medulla.

The principal diaphoretics are enumerated as follows, the figures referring to their supposed mode of action as indicated above, viz.

Jaborandi.^{1,3}
Pilocarpine.^{1,3}
Salicylic Acid.^{1}
Salicylates.^{1}
Ipecacuanha.^{2}
Tartar Emetic.^{2}
Sulphur.^{1}
Opium. ^{2,3} (large doses)
Camphor.^{1}
Tobacco.^{2,3}
Cocaine.^{3}
Ether.^{2,3}
Alcohol.^{2,3}
Nitrous Ether.^{2,3}
Ammonium Acetate.^{1}
Ammonium Citrate.^{1}
Dover's Powder.^{2}
Aconite.^{3}
Veratum Viride.^{3}
Potassium Salts.^{3}
Mezereon.^{1}
Lobelia.^{2,3}
Sarsaparilla.^{1}
Guaiacum.^{1}
Serpentaria.^{1}
Sassafras.^{1}
Senega.^{1}
Vapor Bath.^{2}
Turkish Bath.^{2}
Wet Pack.^{2}
Warm Drinks.^{2}

Anhidrotics (ἀν, without, ἵδρως, sweat), are agents which check perspiration. They may act—

1. By depressing the action of the sweat-glands.
2. By depressing the excitability of the sweat-centres.
3. By reducing the circulation in the skin.

The most important agents of this class are the following-named, the figures indicating their mode of action as above arranged, viz.:—

Belladonna.^{1}
    Atropine.^{1}
Hyoscyamus.^{1}
Stramonium.^{1}
Muscarine.^{2}
Agaricus Albus.^{2}
Salvia, (Sage).
Acids, locally.^{3}
Jaborandi.
Pilocarpine.
Nux Vomica.
    Strychnine.
Ergot.^{3}
Sulphuric Acid.
Quinine?
Picrotoxin.
Dover's Powder.
Opium.^{2} (small doses)
Zinc Salts.^{3}
Local Cold.^{3}

Strychnine, Atropine, Dover's Powder, Jaborandi, Picrotoxin and Zinc Salts, are all respiratory stimulants, and very efficient against the sweating of phthisis, though most of them are classed as diaphoretics. This is explained on the theory of accumulation of Carbonic Acid in the blood by depressed respiration caused by severe coughing, this stimulating the sweat centres, and being opposed by agents which stimulate the respiratory centre.

AGENTS ACTING ON THE GENERATIVE APPARATUS.

Aphrodisiacs (*'Αφροδίτη*, Venus), are medicines which stimulate the sexual appetite and power. They act by reflex or central action upon either the cerebral or the spinal genital centre. Tonics are indirectly aphrodisiac, as are all measures which promote the general bodily nutrition. The chief agents used as direct aphrodisiacs may be enumerated as follows, viz. :—

- Nux Vomica.
  - Strychnine.
- Cannabis.
- Cantharis.
- Phosphorus.
- Aurum.
- Cimicifuga.
- Serpentaria.
- Sanguinaria.
- Opium (at first).
- Camphor (at first).
- Damiana (?).
- Ergot.
- Iron.
- Alcohol.
- Bitter Tonics.
- Flagellation.
- Meat Diet.

Strychnine acts by increasing general nutrition and exalting the reflex excitability of the genital centres. *Hemp* probably only causes a mild delirium which may or may not take a sexual direction. *Cantharides* acts by direct irritation of the mucous lining of the urethra, and is dangerous in aphrodisiac doses. *Alcohol* in small doses excites the genital centre in the brain; so, also, *Opium* and *Camphor*, the latter being decidedly anaphrodisiac after a time. The power of *Damiana* is doubtful. *Urtication and Flagellation* of the nates produce priapism by irritation of the genital centre in the cord through the sensory nerves of the part. *Ergot* is considered useful by contracting the dorsal vein of the penis, preventing its emptying too rapidly.

Anaphrodisiacs (*ἀν*, without, *'Αφροδίτη*, Venus),—are medicines and measures which lower the sexual function and diminish the sexual appetite, They act by lessening the excitability of the nerves of the genital organs, by depressing the genital centres in the brain and cord, or by decreasing the local circulation. The principal anaphrodisiacs are enumerated as follows, viz. :—

- Potassium Bromide.
- Ammonium Bromide.
- Potassium Iodide.
- Camphor (at last).
- Opium (at last).
- Lupulin.
- Cocaine.
- Tobacco.
- Digitalis.
- Conium.
- Belladonna.
- Stramonium.
- Gelsemium.
- Nauseants.
- Purgation.
- Venesection.
- Ice, locally.
- Cold Baths.
- Vegetable Diet.

Emmenagogues (*ἔμμηνια*, the menses, *ἄγω*, to move),—are remedies which restore the menstrual function, either directly by stimulation of the uterine muscular fibre, or indirectly by improving the blood and toning up the nervous system. The direct emmenagogues are *ecbolic* in large doses. The principal members of this class are enumerated in the following list, viz. :—

Direct Emmenagogues.

Ergot.
Quinine.
Savine.
Digitalis.
Cantharis.
Pulsatilla.
Asafetida.
Alcohol.
Indigo.
Hydr. Binoid.
Caulophyllum.
Tansy.
Rue.
Apiol.
Borax.
Myrrh.
Guaiacum.
Polygonum Hydrop.
Potass. Permang.
Cimicifuga.
Oxalic Acid.
Hedeoma.
Origanum.
Viscum Flavescens.

Indirect Emmenagogues.

Iron.
Manganese.
Cinnamon.
Strychnine.
Aloetic Purgatives.
Cod-liver Oil.
Hot Hip-baths.
Leeching the genitals.
Rubefacients to thighs.
Tonic remedies.

Oxytocics or Ecbolics (ὀζύς, quick, τόκος, childbirth; ἐκβολή, abortion),—are agents which stimulate the muscular fibres of the gravid uterus to contraction, and produce abortion. In small doses the same remedies are emmenagogue as a rule. Their mode of action has not been clearly made known, but it is generally believed to be due in some cases to direct stimulation of the uterine centre in the cord, in others to congestion of the uterus producing reflex stimulation. The principal oxytocics are those enumerated in the following list, viz.:—

Ergot.
Ustilago.
Savine.
Quinine.
Borax.
Cotton-root Bark.
Oil of Rue.
Pilocarpine.
Viscum Flavescens.

Any drastic purgative, or gastro-intestinal irritant, may produce abortion by reflex action. The *Volatile Oils* act in this manner, also *Colocynth* and many other agents used by women to produce abortion, as *Tansy, Pennyroyal, etc.*, all of which are dangerous to life in doses sufficient to excite the action of the gravid uterus.

Uterine Depressants lower the activity of the nervo-muscular apparatus which controls the uterine contractions. The most important of these agents are:—

Opium.
Bromides.
Cannabis.
Viburnum Prunifolium.
Chloral.
Chloroform.
Tartar Emetic.
Tobacco.
Sulphate of Copper.
Emetics.
Piscidia Erythrina.

Uterine Tonics and Alteratives,—are medicines which are considered to have such specific influence over the uterus. Authorities differ very much regarding the value of these agents, but those enumerated in the following list are generally considered to have considerable value in uterine therapeutics, viz.:—

Uterine Tonics.

Potassium Bromide.
Potassium Chlorate.
Pulsatilla.
Helonias Dioica.
Cimicifuga.
Savine.
Astringents (locally).

Uterine Alteratives.

Iodine.
Iodoform.
Iodized Phenol.
Glycerin.
Hydrastis.
Silver Nitrate.
Galvanism.

Those in the first list, except Astringents, are used internally; those in the second column as topical applications to the uterine cavity or cervix.

Galactagogues (*γάλα*, milk, *ἄγω*, to bring away),—are medicines which increase the lacteal secretion, as Ricinus, Tea, Anise, Fennel, Potassium Chlorate, etc. The value of many so-called galactagogues is extremely doubtful, the best being the local application of the leaves of the *Castor-oil plant* (Ricinus communis), and a good black Tea internally, with Milk, Beer or Porter as a beverage. *Pilocarpus* comes the nearest to being a true galactagogue, but its influence is very transient. (Compare LACTATION in Part III.)

AGENTS ACTING ON THE CUTANEOUS SURFACE.

Irritants are substances which, when applied to the skin, produce a greater or less degree of vascular excitement. When used to produce a reflex influence on a part remote from their site, they are termed COUNTER-IRRITANTS, and may be subdivided into the following groups, viz. :—

Rubefacients (*rubefacio*, to make red),—produce temporary redness and congestion of the skin, unless left too long in contact with the surface, when they may cause exudation between the cuticle and the true skin (vesicants), or may destroy the tissue and form a slough (escharotics). They may induce muscular atrophy.

Vesicants, Epispastics or Blisters,—produce decided inflammation of the skin, and outpouring of serum between the epidermis and derma. Cantharides is the agent generally used for this purpose.

Pustulants,—affect isolated parts of the skin, as the orifices of the sudoriferous glands, giving rise to pustules.

The following list embraces the principal agents and measures belonging to these groups, viz. :—

Rubefacients.

Mustard.
Capsicum.
Camphor.
Ammonia.
Mezereon.
Arnica.
Alcohol.
Ether.
Chloroform.
Iodine.
Menthol.
Oil of Cajuput.
Oil of Turpentine.
Volatile Oils.
Pitch.
Friction.
Hot Water.

Vesicants.

Cantharides.
Euphorbium.
Mezereon.
Iodine.
Rhus Toxicodendron.
Ammonia (the confined vapor).
Glacial Acetic Acid.
Volatile Oil of Mustard.
Heat. { Boiling Water.
Corrigan's Hammer.

Pustulants.

Croton Oil.
Tartar Emetic.
Ipecacuanha.
Silver Nitrate.

Escharotics or Caustics (*ἐσχάρα*, a slough or scab ; *καὶω*, to burn), are agents which destroy a tissue to which they are applied, and prodnce a slough. They act usually in one of three modes, viz. :—

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1. By abstracting the water of the tissue.
2. By combining with the albumen of the part.
3. By corrosive oxidation.

The principal escharotics are enumerated in the following list, the numbers affixed to each pointing out its mode of action as stated above.

Mineral Acids.[1]
Glacial Acetic Acid.[1]
Carbolic Acid.[1]
Chromic Acid.[3]
Arsenious Acid.[1]
Antimony Chloride.[1]
Caustic Potash.[1]
Caustic Soda.[1]
Lime.[1]
Dried Alum.[2]
Silver Nitrate.[2]
Copper Sulphate.[2]
Mercuric Chloride.[2]
Mercuric Oxide.[2]
Mercuric Nitrate.[2]
Zinc Sulphate.[2]
Zinc Chloride.[2]
Bromine.[3]

Astringents (*ad*, to, *stringo*, to bind),—are agents which produce contraction of muscular fibre and condensation of other tissues, the first probably by direct irritation, the second by precipitating its albumen and gelatin. They also lessen secretion from mucous membranes. The principal astringents may be enumerated as follows, viz.:—

Acids.
Alcohol.
Alum.
Chalk.
Lime.
Creasote.
Carbolic Acid.
Tannic Acid.
Gallic Acid.
Catechu.
Galls.
Kino.
Oak-bark.
Uva-Ursi.
Bismuth Subnitrate, etc.
Cadmium Sulphate.
Copper Sulphate.
Ferric Chloride.
Lead Acetate.
Silver Nitrate.
Zinc Sulphate.

Sulphuric Acid, Gallic Acid and Acetate of Lead are examples of *Remote Astringents*, acting on internal organs through the blood. Those which affect the part to which they are applied are *Local Astringents*, and include most of those enumerated above.

Styptics and Hemostatics (στύφω, to contract; αἷμα, blood, στάσις, a standing),—are agents which arrest hemorrhage, *Styptics* being those which are applied locally, and *Hemostatics* those which are administered internally. Some of the former act mechanically, by promoting the formation of a clot in the mouths of the bleeding vessels; others cause the vessels themselves to contract, checking the flow of blood. The principal members of this class are the following-named:—

Styptics.

Acids.
Alum.
Cautery.
Collodion.
Ferric Chloride.
Ferric Sulphate.
Silver Nitrate.
Cold.
Matico.
Spider's-web.
Tannic Acid.
Lead Acetate.
Zinc Sulphate.
Vegetable Astringents.

Hemostatics.

Ergot.
Digitalis.
Gallic Acid.
Lead Acetate.
Dilute Sulphuric Acid.
Ipecacuanha.
Hamamelis.
Oil of Turpentine.

Emollients (*emollio*, to soften),—are substances which soften and relax the tissues to which they are applied. They relieve tension, dilate vessels, diminish pressure on the nerves, and protect inflamed surfaces from the air and from friction. The principal articles which may be classed under this heading are the following:—

Hot Fomentations.
Poultices.
Glycerin.
Lard.
Linseed Oil.
Olive Oil.
Spermaceti.
Almond Oil.
Petrolatum.
Soap Liniment.
Starch.
Cacao Butter.

Demulcents (*demulceo*, to soothe),—are substances generally of a mucilaginous nature, which soothe and protect the parts to which they are applied. This term is generally used for substances employed for mucous membranes, and the term *Emollients* for similar agents used on the skin. The chief agents belonging to this class are—

Acacia.
Cetraria.
Barley.
Liquorice.
Starch.
Glycerin.
Flaxseed.
Gelatin.
Honey.
Marsh-mallow.
White of Egg.
Almond Oil.
Olive Oil.
Isinglass.
Tragacanth.
Bland Oils.

Protectives,—are agents of a mechanical nature, employed to cover and protect an injured part from the air, water, etc. *Collodion* and *Gutta-percha* are those in general use, but certain plasters, as the Adhesive, the Lead or the Soap Plaster, may be employed for this purpose, also Cotton Wool.

AGENTS ACTING ON MICROBES, GASES, FERMENTS, ETC.

Antizymotics (ἀντὶ, against, ζυμωσις, fermentation),—are agents which arrest fermentative processes, which may depend upon the action of *organic ferments* (enzymes), as diastase, ptyalin, pepsin, etc., or upon that of *organized ferments*, as the yeast-plant, bacteria, etc. The Antizymotics may be subdivided into two groups, Antiseptics and Disinfectants.

Antiseptics (ἀντὶ, against, σηπτικὸς, putrefaction),—prevent or retard septic decomposition, by destroying the bacilli which produce it, or by arresting their development. The chief antiseptics are—

Mercuric Chloride.
Mercuric Iodide.
Mercuric Oxide.
Potassium Permanganate.
Sulphurous Acid.
Sulphites and Hyposulphites.
Sulpho-carbolates.
Potassium Chlorate.
Zinc Chloride.
Carbolic Acid.
Creasote.
Alcohol.
Eucalyptol.
Quinine.
Salicin.
Thymol.
Borax.
Chlorine.
Hydronaphthol.

Disinfectants destroy the specific germs of communicable diseases, many of which belong to the microbe class, hence many antiseptics are also disinfectants. They act in several modes, some as oxidizants, others by combining with albumen, others by chemical combination forming substitution-compounds, others by arresting molecular changes, and still others by altering the reaction of the media containing the germs. The principal disinfectants are—

Heat, 230°–250° F.
Sulphurous Acid Gas.
Nitrous Acid Gas.
Chloride of Lime.
Mercuric Chloride.
Aluminium Chloride.
Zinc Chloride.
Carbolic Acid.
Potass. Bichromate.
Potass. Permanganate.
Iodine.
Chlorine.
Bromine.
Lime.
Osmic Acid.
Ferrous Sulphate.
Zinc Sulphate.

Condy's Fluid is an aqueous Solution of Potassium Permanganate, 2 parts in 100, or gr. 176 in ℥xx. *Burnett's Fluid* is a solution of Zinc Chloride, containing about 50 per cent. of the salt, and equivalent to the official Liquor Zinci Chloridi. *Labarraque's Solution* is the official Liquor Sodæ Chloratæ.

Deodorants,—are agents which destroy foul odors. The *Volatile Deodorants* are chiefly oxidizing and deoxidizing substances, acting chemically on the obnoxious gases; while the *Non-volatile* ones are mainly absorbents, which condense and decompose the effluvia. The deodorants in general use are the following named:—

Chlorine Gas.
Sulphurous Acid Gas.
Nitrous Acid Gas.
Peroxide of Hydrogen.
Potassium Permanganate.
Ozone.
Charcoal.
Earth.
Lime.
Ferrous Sulphate.

Parasiticides (*παρασίτος*, a parasite, *cædo*, to kill),—are agents which destroy the animal and vegetable parasites found upon the human body. They are generally applied in the form of lotions, ointments or oleates, and include the following substances, viz.:—

Sulphur.
Sulphides.
Sulphurous Acid.
Iodide of Sulphur.
Iodine.
Mercury.
Ammoniated Mercury.
Mercuric Chloride.
Mercuric Nitrate.
Mercuric Oxide.
Carbolic Acid.
Petroleum.
Storax.
Staphisagria.
Balsam of Peru.

AGENTS ACTING UPON EACH OTHER.

Antidotes and Antagonists are terms frequently confounded with each other, and rarely defined with sufficient lucidity to enable a clear distinction to be drawn between them. An *Antidote* is a substance which affects a poison either physically or chemically, or both, and in such a manner as to remove the poison from the body or to form with it an insoluble salt or an inert compound, with the object of *preventing* its toxic action upon the organism.

Thus, *Tannic Acid* is an antidote to *Digitalis*, as it forms therewith a compound (tannate), which is soluble with difficulty and therefore comparatively innocuous. But as this tannate is not wholly inert, another antidotal measure must be employed, viz:—evacuation of the stomach, which may be accomplished by the administration of *Zinc Sulphate* or any other emetic, or by the use of a stomach-pump.

Antagonists, on the other hand, are agents which directly oppose each other in some or all of their physiological actions, and may be used against each other to *counteract* their effects on the system. Antidotal action takes place in the alimentary canal, and is applicable to vegetable as well as mineral poisons. Antagonism takes place in the blood and tissues, and so far as antagonistic drugs are concerned, is applicable almost wholly to vegetable poisons, as these produce their effects after absorption. The heart and respiratory apparatus are the principal objective points for the antagonism of drugs, but the spinal cord, the cerebrum, muscular tissue and the glandular system are also affected by most of them.

Antagonistic Measures are such proceedings as may tend to antagonize certain effects of poisons, and include Artificial Respiration,—Faradism of the respiratory muscles,—Constant motion,—Douching,—Rest, etc.

Thus, to refer to the case of Digitalis again, *Saponin* and *Senegin* are its most complete physiological antagonists, their counteraction extending throughout the whole range of its effects. *Aconite* and *Morphine* antagonize its cardiac action, the former being considered the best antagonist to the effects of large doses, and the latter to those of its long-continued use. *Alcohol* is also indicated in Digitalis-poisoning, and absolute *Rest* in the recumbent posture is an antagonistic measure of great importance, by reason of the liability of the heart to cease its action on assuming the erect position, when much lowered by the drug.

In the treatment of poisoning, whether from mineral or vegetable substances, the first indication is to administer the appropriate chemical antidote, so as to render the poison harmless or comparatively so. Next, the stomach should be emptied and washed out, lest the newly-formed compound be absorbed after a time, and to remove any of the poison which may have escaped the action of the antidote. Next, the antagonist should be administered, in order to counteract the effects of such portion of the poison as may have been absorbed. Lastly, the appropriate antagonistic measures should be employed to sustain the action of any organic function which may show signs of failure. In most cases of alkaloidal poisoning absorption has proceeded so far before assistance is obtained that antidotes are of no value, and reliance can only be placed upon the physiological antagonist and such supporting measures as will tend to maintain vitality until the poison has been eliminated by the natural channels.

In the following pages the antidotes and antagonists for each poisonous substance in the Materia Medica are enumerated under their proper titles, and in the Appendix the same agents are tabulated in a suitable form for reference. A few examples are appended below, to illustrate the principles above stated, and to point out some of the most prominent instances of physiological antagonism at present known.

Atropine, Belladonna, etc.

Antidotes,—Tannic Acid, to form an insoluble tannate. Zinc Sulphate, as an emetic, or Apomorphine hypodermically, or the stomach-pump. Purgation. *Antagonists,*—Muscarine. Physostigmine. Pilocarpine. Morphine. Quinine. Aconite. *Antagonistic Measures,*—Artificial respiration. Faradism of respiratory muscles.

Strychnine, Nux Vomica and Ignatia.

Antidotes,—Animal Charcoal suspended in water. Emesis, as above-mentioned. *Antagonists,*—Chloral, or Chloroform, to muscular relaxation. Curare. Nitrite of Amyl. Bromide of Potassium. *Antagonistic Measures,*—Artificial respiration. Perfect quiet.

Morphine and Opium.

Antidotes,—Emesis or stomach-pump. *Antagonists*,—Atropine. Strychnine. Black Coffee. Caffeine. Ammonia, inhaled. Amyl Nitrite. *Antagonistic Measures*,—Cold douche. Artificial respiration. Continued movement.

Potassium Cyanide.

Antidotes,—Sulphate of Iron, to form Prussian Blue. Emesis. *Antagonists*,—Atropine. Ammonia. Alcohol. *Antagonistic Measures*,—Artificial respiration. Faradism.

Arsenic and its Compounds.

Antidotes,—Hydrated Oxide of Iron. Dialyzed Iron. Magnesia. Chalk. Lime-water. Emetics, or stomach-pump. Oil or Mucilage to protect the mucous membranes. Diluents, Iodide of Potassium, to promote elimination. *Antagonists*,—none.

PART I.

MATERIA MEDICA AND THERAPEUTICS.

ABRUS, Jequirity (Unofficial),—is the seed of *Abrus precatorius*, or Wild Liquorice, a plant of the nat. ord. Leguminosæ, indigenous in India, but growing wild in most tropical countries. The seeds are small, hard, of a bright scarlet color, with a black spot around the hilum, and contain an alkaloid, some fixed oil, sugar, a principle resembling Glycyrrhizin, and *Abric Acid*, $C_{12}H_{24}N_3O$; but neither of these is believed to be the active principle.

Preparation.

Infusum Abri. Infusion of Jequirity (Unofficial),—prepared by macerating three powdered seeds in ℥ss of cold water for twelve hours, adding ℥ss of boiling water, and filtering when cold. It should be used while fresh, as after two or three days it is worthless.

Another formula contains gr. ix of Jequirity to the ℥, with gr. iv of Boric Acid to prevent decomposition.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Jequirity seeds, when moistened with water, become highly poisonous. If applied to the conjunctiva, a severe inflammation is set up, with œdema and false membrane, ulceration of the cornea, and extension to the lids, face, neck and submaxillary glands. Inserted into a wound in cattle, they cause death in a few hours. The irritant action is believed to result from the presence in the seeds of some ferment, or perhaps great numbers of gonidia, which develop rapidly on a suitable tissue. The infusion, in a short time, swarms with bacteria.

Jequirity is used for the purpose of producing a purulent or croupous conjunctivitis, by which to destroy old granulations (trachoma) and pannus. A mild infusion is applied to the eye two or three times a day for two days, and followed by weak solutions of Alum or Borax. This should be repeated after three weeks if necessary. An emulsion of the seeds in water is a useful application to unhealthy ulcers and lupus.

ABSINTHIUM, Wormwood,—the leaves and tops of *Artemisia Absinthium*, a perennial garden herb of the nat. ord. Compositæ, indigenous in Europe, but cultivated in the United States. The leaves are about 2 inches long, hoary, silky-pubescent, petiolate, pinnately two or three-cleft; heads numerous, with small, pale-yellow florets, odor aromatic, taste persistently bitter. It contains a volatile oil and a bitter principle, *Absinthin*. Dose, gr. xx–xl, in infusion. There are no official preparations, except Vinum Aromaticum (see ALCOHOL), of which Absinthium constitutes one per cent.

Absinthe, the French liqueur, is an alcoholic solution of the oil, containing also extracts of Anise, Marjoram, and Angelica. Its continued use produces various nervous symptoms, morning nausea and vomiting, also a tendency to epileptiform convulsions.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The bitter constituent of Absinthium is stimulant to the digestive organs, but the oil is a narcotic poison, increases the cardiac action, and produces tremor, stupor, epileptiform convulsions, involuntary evacuations, and stertorous breathing. It is but little used in medicine, and only as a stomachic tonic in dyspepsia.

ACACIA, Gum Arabic,—is a gummy exudation from *Acacia Verek*, a small tree of the nat. ord. Leguminosæ, indigenous in Africa—also from other species of Acacia. It occurs in spheroidal tears of various sizes, breaking with a glassy, sometimes iridescent fracture; insoluble in alcohol, but soluble in water, forming a thick and mucilaginous liquid. It consists of *Arabin* or *Arabic Acid*, $C_{12}H_{22}O_{11}$, combined with calcium, potassium, and magnesium.

Preparations.

Mucilago Acaciæ,—has of Acacia 34, Water to 100 parts. It should not be prescribed with tinctures or spirits except in very small quantity. Dose, indefinite.

Syrupus Acaciæ,—has of the Mucilage 25, Syrup 75. Should be freshly made. Dose, indefinite.

Acacia enters into the composition of Mistura Amygdalæ, Mistura Glycyrrhizæ Composita, Pulvis Cretæ Compositus, Trochisci Cretæ, Trochisci Cubebæ, and Trochisci Glycyrrhizæ et Opii.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Gum Arabic has no activity except the negative one of a demulcent, and is chiefly used in coughs, sore throats, catarrhal inflammation of the stomach and intestines, and irritant poisoning. It is much employed in pharmacy to suspend insoluble powders in mixtures, for which purpose the mucilage is generally used.

ACETANILIDE,—Antifebrin. Like the major number of the newest antipyretics, which are related either to Chinoline or to Phenol, *Acetanilide* is a derivative of *Anilin*, from which it is obtained by the action thereon of glacial acetic acid, substituting the organic radical

Acetyle for an atom of hydrogen. Chemically, it has the name *Acetanilide* or *Phenyl-acetamide*, and the formula $C_6H_5.C_2H_3O.NH$.

The name *Antifebrin* is copyrighted by its original promoters for trade purposes, and therefore should be dropped from professional usage.

It is a pure white and crystalline powder, of neutral reaction, odorless, but of slightly burning taste. It melts at 235° F., and distils at 557° F., —is soluble freely in alcohol, wine, etc.,—but very sparingly (1 in 190) in cold water, and a little more readily in hot water. It is a neutral substance, being unaffected by hydrochloric or sulphuric acids, and ordinarily so by alkalies.

The dose ranges from gr. ij to gr. xv, repeated twice, but not exceeding gr. xxx in the 24 hours. As much as ʒj has been swallowed without ill effects supervening. It may be administered in the very convenient form of compressed tablets;—also in powders, or in dilute alcoholic solution. ʒj may be dissolved in ℥ivss of brandy, to which, if we add ʒvj each of simple syrup and water, we get a six-ounce mixture, of which a tablespoonful (℥ss) contains 5 grains of Acetanilide, a fair adult dose. As an antipyretic, gr. iij may be administered every ¼ to ½ hour, until 12 or 15 grains have been given, which will usually be a sufficient quantity, especially if given at the acme of the febrile movement.

PHYSIOLOGICAL ACTION.

Acetanilide is a very efficient antipyretic, besides being strongly analgesic and antispasmodic, lessening the reflex action of the spinal cord, and inhibiting the sensibility of sensory nerves. It raises the arterial tension somewhat, and slows the heart in a corresponding degree.

Compared with the action of Antipyrine, the effect of Acetanilide on the body-temperature is manifested more slowly (1 hour against ½ hour), —but lasts a longer time (6 against 2 hours). It is markedly diuretic, somewhat diaphoretic; is a cerebral, muscular and vaso-motor stimulant, and leaves no ill after-effects;—while Antipyrine is powerfully diaphoretic, a cerebral sedative, and produces great depression. Furthermore, Acetanilide produces the same degree of reduction of body-temperature as Antipyrine, with the ingestion of but ¼th the dose; and, like the latter agent, it has little or no effect on the normal temperature, and its continued use begets tolerance of its action.

Its Antipyretic action corresponds, in degree and in duration, to the size of the dose,—the pulse is slowed, and quiet sleep often follows. There is neither vomiting nor diarrhœa afterwards, but there is a tendency, in some few cases, to collapse, with chills and cyanosis, especially the latter, during the period of depressed temperature.

A toxic dose destroys the ozonizing function of the blood, decolorizing it, and forming methyl-hæmoglobin. The heart, liver and kidneys are found in a state of acute fatty degeneration, in animals poisoned thereby. Its continued use in large doses is highly injurious to the blood, especially in diseases (as typhoid fever) which are themselves destructive to the blood.

THERAPEUTICS.

Besides being one of the most efficient antipyretics, this drug has marked analgesic and antispasmodic powers; and these, together with its great advantages of a small dose, efficiency and safety, and the absence of the severe rigors and cardiac depression which mark the chinoline derivatives,—combine to make it one of a wider therapeutical range than most of its analogues. It is especially useful in phthisis and typhoid fever, for the hyperpyrexia, thereby relieving wakefulness, lessening delirium, and upholding a failing heart; but if long used in large doses in the latter disease it may increase the liability to serious sequelæ, especially periostitis of the ribs, gangrene of tissues, etc. For the pains of locomotor ataxia, and in those of rheumatic origin, sciatica, lumbago, etc., it is a most efficient remedy. In acute rheumatism, it is highly praised; though its efficiency is herein disputed by Salol. In epilepsy, it is being tried, with the view of moderating reflex excitability.

ACIDUM ACETICUM, Acetic Acid,—is a liquid composed of 36 per cent. of absolute *Acetic Acid*, $HC_2H_3O_2$, and 64 per cent. of water. It is a clear, colorless liquid, of a distinctly vinegar odor, a purely acid taste, and a strongly acid reaction; sp. gr. 1.048 at 59° F.; miscible in all proportions with water and alcohol, and wholly volatilized by heat. It is prepared from wood by destructive distillation and purification. Acetic Acid is also official in two other degrees of concentration, viz.—

Acidum Aceticum Glaciale, Glacial Acetic Acid, $HC_2H_3O_2$,—is nearly or quite absolute Acetic Acid, solid below 59° F., above that temperature a colorless liquid of sp. gr. 1.056 to 1.058. Is strongly escharotic and only used locally.

Acidum Aceticum Dilutum, Diluted Acetic Acid,—consists of Acetic Acid 17, Distilled Water 83 parts, contains 6 per cent. of absolute Acetic Acid, and has a sp. gr. of 1.0083. Dose, ʒj–ij.

Acetum, Vinegar (Unofficial),—is an impure diluted Acetic Acid, produced by the acetous fermentation of any liquid susceptible of the vinous fermentation.

Diluted Acetic Acid is used in the preparation of the four official Aceta (Vinegars).

PHYSIOLOGICAL ACTION.

Acetic Acid, like the other vegetable acids, in concentrated form is escharotic and produces gastro-enteritis if swallowed. In dilute form it acts as a refrigerant, diminishing thirst and allaying restlessness. It forms salts in the stomach, thus enters the blood, and is there oxidized, producing carbonic acid, and thereby increasing the acidity of the urine. It is also diuretic. Long used, it causes emaciation and poverty of the blood, producing a general scorbutic condition. It is hemostatic and anthelmintic, and the vapor inhaled causes reflex contraction of the vessels and raises the blood-pressure.

THERAPEUTICS.

The glacial acid is used as a caustic in many skin affections, as warts, condylomata, etc., and to destroy the parasite in ringworm and pityriasis.

It has been employed locally in carcinoma, with the view of dissolving the supposed cancer-cells. The dilute acid is used locally in superficial inflammations of the skin, and may be sponged over the body to check perspiration and reduce the surface temperature in fevers. It is often administered internally to reduce obesity, which it does by impairing digestion. Locally, it may be employed to arrest slight hemorrhages, as epistaxis; and is occasionally used by enema for the destruction of ascarides.

ACIDUM BORICUM, Boric or Boracic Acid, H_3Bo_3,—is a weak acid occurring in transparent, colorless, six-sided plates, of unctuous touch, odorless, of a cooling and slightly bitter taste, soluble in 25 of water and in 15 of alcohol at 59° F., in 3 of boiling water and in 5 of boiling alcohol. It is produced from Borax by the action of Sulphuric Acid. Dose, gr. v–xx. There is only one official Borate, viz.—

Sodii Boras, Borate of Sodium, Borax, $Na_2B_4O_7, 10H_2O$,—colorless, transparent prisms, of cooling and sweetish, afterwards alkaline taste and alkaline reaction, soluble in 16 of water at 59° F., and in 0.5 of boiling water; insoluble in alcohol. Occurs native in ancient lake beds in various parts of the world. Dose, gr. v–xl.

Unofficial Preparations.

Boro-glyceride,—is a solid chemical compound, prepared by heating together Boracic Acid and Glycerin. It is soluble in water, but is generally used in solution of equal parts of pure Glycerin and Boro-glyceride. It combines readily with Chrysarobin, Carbolic Acid, Atropine, and Morphine, and is used as a local application in eye-diseases and skin affections.

Boracic Ointment,—has of Boracic Acid 1, White Wax 1, Paraffin 2, Almond Oil 2, thoroughly mixed together.

Boracic Lotion,—is a saturated solution of the acid in water.

Boracic Lint,—prepared by steeping lint in a boiling saturated solution and drying. It contains nearly one-half its weight of the acid.

Magnesii Boro-citras, Borocitrate of Magnesium,—prepared extemporaneously thus,—℞. Magnesii Carbonatis ʒj, Acidi Citrici ʒij, Sodii Biborat. ʒij, Aquæ Bullientis ℥viij. A tablespoonful three or four times daily as a solvent of uric acid calculi.

Potassii Tartra-boras, Tartraborate of Potassium,—is a better solvent of uric acid calculi than the Magnesium salt, and is soluble in 2 parts of cold water. Prepared by heating together Boracic Acid 1, Potassii Bitartras 4, Water 10 parts. Dose, gr. xx, largely diluted with water, three or four times a day.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Boracic Acid is an efficient antiseptic, disinfectant, and deodorant, arresting fermentation and putrefaction, and very destructive to low organisms. A solution of 1 in 133 arrests the activity of bacteria. It is feebly acid and but slightly irritant, and is used as a surgical dressing for its antiseptic and unirritating qualities. Its lotion and ointment have been successfully employed in ulcers, eczema, burns and scalds, pruritus ani, fetid perspiration, wounds, tinea tonsurans, and tinea circinata.

THE BORATE OF SODIUM is antiseptic and disinfectant, as it also destroys low vegetable organisms. It removes the epidermis when locally applied, has power to increase uterine contraction, and aids the solution of Benzoic Acid. It is employed as a wash to remove the epidermis from the skin, and as a lotion in acne, freckles, chloasma, leucorrhœa, aphthæ, etc., and to allay itching in urticaria, psoriasis, impetigo, and in pruritus pudendi, scroti et ani. It has been used internally in amenorrhœa, dysmenorrhœa, puerperal fever and puerperal convulsions, for its supposed specific action on the uterus.

BORO-GLYCERIDE in solution (1 to 40) is also a powerful antiseptic, and is used as a lotion in purulent opthalmia and in the treatment of wounds, also as a local application to diphtheritic membranes. It is an efficient preservative of milk and food against putrefactive changes, and is entirely harmless.

An elegant cosmetic cream may be made by dissolving Boracic Acid in Glycerin, and then incorporating it with White Wax and Almond Oil.

ACIDUM CARBOLICUM, Carbolic Acid, Oxy-benzene, Phenic Acid, Phenylic Alcohol, Phenol, C_6H_5HO,—is an alcoholic product of the distillation of coal-tar between the temperatures of 356° and 374° F. It occurs in needle-shaped crystals of tarry odor and burning taste, is liquefied by about 5 per cent. of water, soluble in 20 of water at 59° F., and very soluble in alcohol, ether, chloroform, glycerin, oils, etc.

Peculiarities about Carbolic Acid are that about 5 per cent. of water liquefies it, a further addition of water renders it turbid, until 2000 parts of water to 100 of the acid have been added, when a stable and clear solution is formed. One volume of liquefied Carbolic Acid containing 5 per cent. of water forms with one volume of Glycerin a clear mixture which is not rendered turbid by the addition of three volumes of water (absence of Creasote and Cresylic Acid). It does not redden blue litmus paper, but combines freely with alkalies and other salifiable bases, the products having an alkaline reaction and being decomposed by the feeblest acids (carbonic, etc.). Dose, gr. ¼–j.

ACIDUM CARBOLICUM CRUDUM, Impure Carbolic Acid,—is obtained as above stated, but at a lower heat (338° to 374° F.), and contains *Carbolic, Xylic* and *Cresylic Acids* in varying proportions, together with other impurities. It is used as a disinfectant.

Preparations.

Unguentum Acidi Carbolici,—strength 10 per cent., Ointment 90.

Glyceritum Acidi Carbolici (Unofficial),—Carbolic Acid 1, Glycerin 4.

Aqua Acidi Carbolici (Unofficial),—has of the Glycerite ʒx to Aquæ Oj. Dose, ʒj–℥ss.

Carbolic Acid Gauze (Unofficial),—is medicated with Ac. Carbol. 1, Resin 5, Paraffin 7 parts.

Carbolic Acid Plaster (Unofficial),—has of Carbolic Acid 25, Shellac 75, coated with Gutta-percha dissolved in Carbon Disulphide.

Carbolic Acid Solutions, for antiseptic surgery, are—
5 per cent. in Water, as a spray or wash.
2½ per cent. in Water, for sponges, hands, or as a lotion.
5 per cent. or less in Olive Oil, as a special dressing.

Phenol Sodique is composed of Carbolic Acid gr. 188, Caustic Soda gr. 31, Distilled Water ℥iv.

Official Derivative Salts.

Sodii Sulpho-Carbolas, Sulpho-carbolate of Sodium, $NaC_6H_5SO_4.2H_2O$,—prepared by dissolving Carbolic Acid 1, in strong Sulphuric Acid 1, thus forming Sulpho-carbolic Acid, which is then neutralized with Carbonate of Sodium. Transparent, rhombic prisms, soluble in 5 of water at 59° F., less freely in alcohol and glycerin. Dose, gr. x–xxx.

Analogues.

Creasotum, Creasote,—is a similar product, obtained from wood-tar, but by the action of Nitric Acid it is converted into Oxalic Acid chiefly, while by the same reagent Carbolic is converted into Picric Acid. Creasote does not coagulate albumen (?) or collodion, Carbolic Acid does. Creasote is described under its own title.

Resorcin (Unofficial), $C_6H_6O_2$,—is also a phenol, obtained from certain resins by the action of fusing alkalies. [Described under its own title.]

PHYSIOLOGICAL ACTION.

CARBOLIC ACID is a powerful antiseptic and antiferment, being destructive to all low forms of life. It is a local anæsthetic and a superficial escharotic, coagulating albumen and also the blood when out of the body. Taken internally undiluted it produces violent gastritis, ♏ vj of the pure acid having caused dangerous symptoms. It stimulates the cardiac inhibition, first slowing, then depressing, and finally paralyzing the heart. Respiration, at first increased, is soon depressed, the pupils are contracted, and both brain and spinal cord are directly affected; stupor, coma, suspended reflexes, impaired motility and sensibility being produced. It is rapidly absorbed and diffused, many fatal cases having occurred from its external use. It is partly oxidized in the blood, and partly eliminated by the lungs and kidneys, imparting to the urine a peculiar olive-green or smoky color.

Locally applied Carbolic Acid produces on the skin or mucous membrane a white superficial eschar which succeeds to burning pain of short duration.

Antidotes and Antagonists.

Liquor Calcis Saccharatus, or the official Syrupus Calcis, given freely; or Sulphate of Sodium or Magnesium to form a Sulpho-carbolate, are the chemical antidotes. Vegetable demulcents (but no oils or glycerin) to protect the mucous surfaces. *Atropine* is a very complete physiological antagonist to the systemic symptoms, maintaining the heart and respiration until elimination occurs. Of *Magnesium Sulphate* nearly 3 ozs. were used in a case where ½ oz. of 95 per cent. acid had been taken, resulting in full recovery from an apparently hopeless condition. *Cider Vinegar* may prove to be an antidote, as it removes the effects of the local application of the strong acid.

THERAPEUTICS.

CARBOLIC ACID owes its prominence to its having been the principal agent used in the antiseptic method of treating wounds; but lately its employment in that connection has become much restricted, and many of the most prominent surgeons have abandoned it altogether in favor of other germicides. For nausea and vomiting it is an excellent remedy in ¼ grain doses, and in many chronic pulmonary affections it is used with benefit by spray. It may be employed locally in acute and chronic catarrhs, parasitic skin diseases, uterine and other ulcers, abscesses, boils, and carbuncles, endo-metritis, and perhaps in pulmonary phthisis. It has proven of temporary benefit in diabetes of hepatic origin. It has been injected parenchymatously (2 per cent. solution) in erysipelas, pleuro-pneumonia, intermittents, synovitis, lupus, chancroid, hydrocele, etc.

The Sulpho-carbolates of Sodium, Potassium, Calcium, and Magnesium, have been employed advantageously in the septic diseases (as the exanthemata, diphtheria, puerperal fever), the object being to obtain the antiseptic and antipyretic actions of Carbolic Acid without its dangers. They may be used locally with good results in aphthæ, tonsillitis, otorrhœa, gonorrhœa, and inflamed mucous membranes generally.

ACIDUM CHROMICUM, Chromic Acid, CrO_3,—is obtained by the action of Sulphuric Acid upon Potassium Chromate, and occurs in small crimson needle-shaped crystals, deliquescent and very soluble in water. Brought in contact with alcohol mutual decomposition takes place. A similar result and perhaps sudden combustion results when it is placed in contact with other easily oxidizable substances, such as Glycerin, Spirit of Nitrous Ether, etc. It is not used internally.

Potassii Bichromas, Bichromate of Potassium, $K_2Cr_2O_7$,—large, orange-red prisms of disagreeable, metallic taste and acid reaction, soluble in 10 of water at 59° F., and in 1½ of boiling water, insoluble in alcohol. Used locally in aqueous solution (gr. v–ʒj to the ℥), and internally in doses of gr. $\frac{1}{10}$–ij in trituration.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

CHROMIC ACID is a powerful escharotic, penetrating deeply, but slow of action and not very painful. It coagulates albumen and parts readily with its oxygen, oxidizing organic matter and decomposing ammonia and sulphuretted hydrogen. It is therefore an energetic disinfectant and deodorizer. When used as a caustic it is mixed with sufficient water to make a paste, which may be employed for the destruction of warts, hemorrhoids and other superficial growths, the neighboring parts being protected by cotton soaked in a strong alkaline solution. For syphilitic warts and condylomata, lupus, tinea tonsurans, etc., a solution of 100 grains to the ℥ of distilled water is generally used. A solution of 1 in 40 is an excellent and inexpensive antiseptic lotion for putrid sores and wounds, syphilitic affections of the tongue, mouth and throat, ozæna, leucorrhœa, and gonorrhœa. In uterine catarrh and hemorrhages a solution of 120 grains to the ℥ has been injected into the uterine cavity with good results.

BICHROMATE OF POTASSIUM is a good antiseptic and an escharotic of milder action than the acid. In doses of ʒij–iv it has proved fatal to life in adults, with symptoms of gastro-enteritis, suppression of urine, and cardiac paralysis. It is chiefly employed as a local application in saturated solution to warts and venereal condylomata; and in dilute solution (gr. j–x to the ℥) for catarrhal conditions of the nasal, buccal, or vaginal mucous membrane. Internally it has been employed with benefit in locomotor ataxia and in dyspepsia simulating gastric cancer; also in chronic gastric catarrh, the tongue having a thick yellow coat, in chronic diarrhœa from intestinal ulceration, and in chronic ulcers of the pharynx and mouth. It is a good remedy in syphilitic sore throat, local rheumatism of the fibrous tissues, periosteal and syphilitic rheumatism, and acute catarrh and influenza, chronic nasal catarrh, chronic laryngitis, and chronic catarrhal affections of the bronchial mucous membrane, especially when the expectoration is tough and stringy. It has also been used with some success in membranous croup and diphtheria. In pharmacy it is employed in the preparation of Chromic Acid and Valerianic Acid, and as a test solution. Most of the medical galvanic and faradic batteries are run by a mixture of this salt with Sulphuric Acid. *Poisoning* by it should be treated as directed for that by mineral acids.

ACIDUM FLUORICUM, Fluoric Acid, HF (Unofficial),—is a strong escharotic, acting deeply and leaving a dry and painful slough. The dilute acid (1 in 200) is prepared by acting on fluor spar by Sulphuric Acid, the resulting gas being dissolved in water. Its dose is ♏xx–xxx, well diluted.

THERAPEUTICS.

Dilute Fluoric Acid has been successfully used as an internal remedy in goitre, and the gas has been inhaled with benefit in diphtheria and membranous croup.

ACIDUM GALLICUM, Gallic Acid, $HC_7H_5O_5.H_2O$,—is a nearly colorless solid in long needles or triclinic prisms, having a slightly acid and astringent taste, soluble in 100 of water and in 4½ of alcohol at 59° F., and in 3 of boiling water. It is prepared from a paste of powdered galls (see GALLA), by fermenting for six weeks, boiling and reboiling in water, filtering and crystallizing. According to some authorities the Tannic Acid of the galls is split up into Gallic Acid and glucose by fermentation; but according to others the glucose is an impurity and the Tannic Acid is simply converted into two parts of Gallic Acid, $C_{14}H_{10}O_9 + H_2O = (HC_7H_5O_5)_2$. Dose, gr. v–xv, in solution, pill, or powder.

ACIDUM PYROGALLICUM, Pyrogallic Acid, Pyrogallol, Tri-hydroxybenzene, $C_6H_3(HO)_3$ (Unofficial),—is obtained from Gallic or Tannic Acid by careful heating. Dose, gr. j–ij.

Preparations.

Unguentum Acidi Gallici,—is a 10 per cent. ointment, with a basis of Benzoinated Lard.

Vegetable Astringents depend for their medicinal value upon the Gallic and Tannic Acids contained in them. Such are—

Alnus, *Alder Bark.*
Castanea, *Chestnut Leaves.*
Catechu, *Catechu.*
Diospyros, *Persimmon.*
Galla, *Nut Galls.*
Geranium, *Cranesbill.*
Granatum, *Pomegranate.*
Hamamelis, *Witch Hazel.*
Hæmatoxylon, *Logwood.*
Heuchera, *Alum Root.*
Kino, *Kino.*
Krameria, *Rhatany.*
Myrica, *Wax Myrtle.*
Nymphæa, *Pond Lily.*
Quercus Alba, *Oak Bark.*
Rosa Gallica, *Red Rose.*
Rubus, *Blackberry.*
Statice, *Marsh Rosemary.*

Physiological Action.

Gallic Acid, and its congener Tannic Acid, are astringents, the former being the more feeble of the two. They differ in that Tannic Acid coagulates albumen and gelatin, while Gallic does not. Tannic Acid is converted by the organism into Gallic and Pyrogallic Acids, in which forms it is absorbed and excreted. According to some authorities the difference between Gallic and Tannic Acids is one of oxidation, according to others of hydration; the latter assuming Tannic Acid to be simply Gallic Acid Anhydride. They constringe the muscular tissue in the walls of the minute vessels, thus checking secretion and hemorrhages and cutting short local inflammations. Except in enormous doses they are harmless. [Compare Acidum Tannicum.]

Pyrogallic Acid may act as an intense poison, having been absorbed from the surface with fatal results, preceded by vomiting and diarrhœa, rigors, and fever, black urine full of globulin, and disorganization of the blood-corpuscles. It has great affinity for oxygen and may be used as an antiseptic and disinfectant in 1 to 2½ per cent. solutions.

Antagonists and Incompatibles.

Mineral acids, alkalies, per-salts of iron, and salts of antimony, lead, and silver are chemically incompatible.

Therapeutics.

Gallic Acid is preferred to Tannic Acid when an astringent action is desired upon remote parts, as the lungs, kidneys, etc., which can only be reached through the circulation. In hematuria, distant passive hemorrhages, albuminuria, diabetes insipidus, bronchorrhœa, night-sweats, chronic diarrhœa, and chronic cystitis, it is a most useful remedy.

Pyrogallic Acid has been used internally in two-grain doses for internal hemorrhages. As an ointment (ʒj–℥j) it is next to Chrysarobin as an efficient palliative in psoriasis, and has been used with good results in lupus and epithelioma, being supposed to attack the diseased nodules only, leaving the adjacent skin uninjured.

ACIDUM HYDROBROMICUM DILUTUM, Diluted Hydrobromic Acid,— is composed of 10 per cent. of absolute Hydrobromic Acid (HBr), and 90 per cent. of water. It is a clear, colorless, and odorless liquid, of a pungent acid taste, produced by decomposing Potassium Bromide by Sulphuric Acid and distilling. Dose, ♏xx–ʒij, every three hours.

Physiological Action and Therapeutics.

Hydrobromic Acid has identical action on the nervous system and circulation with that of the Bromides. Added to a mixture of Quinine and water (♏ij to each grain of Quinine) it will produce a clear solution.

In hysteria, congestive headaches, neuralgia, and nervous exhaustion, Hydrobromic Acid has been found useful. Used as a solvent of Quinine it retards cinchonism, and prevents the headache resulting from the full action of Quinine and Iron. As a substitute for the Bromides of Sodium and Potassium it is highly recommended, being much less depressant. It has been especially recommended in tinnitus aurium. Fothergill uses it for coughs of reflex or spasmodic nature, also for simple continued fever where there is cerebral disturbance.

ACIDUM HYDROCHLORICUM, Hydrochloric Acid, Muriatic Acid,—is a liquid composed of about 32 per cent. of absolute Hydrochloric Acid Gas, HCl, and 68 per cent. of water. It is colorless and fuming, of specific gravity 1.160, pungent odor, intensely acid reaction and taste, and is obtained by the action of Sulphuric Acid upon Sodium Chloride, the resulting gas being carried through water which dissolves it. It is sometimes used as a caustic. Its union with basic substances forms salts, called Hydrochlorates (Muriates), of which four are official, viz.: the Hydrochlorates of Apomorphine, Morphine, Pilocarpine, and Quinine, described under the titles of their respective bases.

Preparations.

Acidum Hydrochloricum Dilutum,—is a 10 per cent. solution of the absolute acid in water. Dose, ♏ iij–x.

Acidum Nitro-hydrochloricum,—see under *Acidum Nitricum*.

Physiological Action of the Mineral Acids.

The mineral acids (Hydrochloric, Sulphuric, Nitric, Nitro-hydrochloric, and Phosphoric) resemble each other in general action so closely that they may all be described in this place.

The strong acids are escharotic, abstracting the water of the tissues, combining with the albumen and other bases, and destroying the protoplasm. They are very diffusible, redissolving the albumen after precipitating it (except Nitric Acid). Sulphuric and Phosphoric have a strong affinity for water, completely decomposing tissues to which they are applied, and are therefore the most powerfully escharotic. Nitric Acid does not readily redissolve the albumen precipitated by it, which thus forms a barrier against the deep action of the acid. Sulphuric Acid chars or carbonizes the tissues black, while Nitric and Hydrochloric tan them yellow.

The dilute acids produce a peculiar taste in the mouth and a sensation of roughness on the teeth. They stimulate the flow of saliva from the parotid and submaxillary glands, but have no action on the sympathetic saliva. They promote the alkaline intestinal secretions and excite the flow from ducts having an alkaline secretion (bile, etc.), but check that from those whose secretion is acid (gastric, etc.). Secretion generally is promoted by Nitric Acid, and lessened by Sulphuric, Hydrochloric acting between the other two. Given before meals, in small doses, they relieve acidity of the stomach by checking the production of the acid gastric juice. At first they aid digestion, being synergistic to the action of pepsin, but if continued they impair digestion by lessening the production of the gastric juice. They check fermentation and constipate the bowels, except Nitric Acid, which relaxes them. They render the urine slightly more acid than its normal reaction, but do not acidify alkaline urine as the vegetable acids do. They are all astringent to the tissues, Hydrochloric being weakest and Sulphuric the strongest in this respect.

Antagonists and Incompatibles.

Alkalies to neutralize the acid; oil, albumen, or milk, to protect the mucous membrane; stimulants, *Opium*, *Ammonia* (intravenously) to combat the resulting depression of the vital powers.

THERAPEUTICS OF THE MINERAL ACIDS.

All the members of this group are useful in fevers, if well diluted, Hydrochloric being usually preferred, especially in typhoid. In atonic dyspepsia, acidity of the stomach, and locally in ulcerations of the throat, Hydrochloric Acid is best used. Nitric is the acid generally preferred as a caustic, its action being effective and superficial. As such it is applied undiluted to phagedenic ulcers and sloughs, warty growths, and to the cavity of the womb in chronic inflammation thereof. Dilute Nitric Acid is used internally in oxaluria and lithemia, intermittent and remittent fevers, and aphonia of singers. Dilute Nitro-hydrochloric is more suitable in chronic hepatic disorders due to malaria; Sulphuric in hemorrhages, diarrhœas, colliquative sweating, and as a prophylactic against lead-poisoning. Dilute Sulphuric Acid is used as an acid drink in fevers, and before meals in acidity of the stomach. It is very doubtful whether the latter has any special influence on the nervous or osseous systems.

All these acids act injuriously on the teeth, by attacking the enamel. They should always be administered largely diluted, taken through a straw or glass tube, and the mouth should at once be thoroughly rinsed with an alkaline solution.

ACIDUM HYDROCYANICUM DILUTUM, Diluted Hydrocyanic Acid, Prussic Acid,—is a liquid composed of 2 per cent. of absolute Hydrocyanic Acid, HCN, and 98 per cent. of alcohol and water. It is colorless, faintly acid, of peculiar odor, and is prepared by distilling solutions of Potassium Ferrocyanide and Sulphuric Acid together, or extemporaneously by adding 6 parts of Cyanide of Silver to a solution of 5 parts of Hydrochloric Acid in 55 of distilled water, shaking together and pouring off the supernatant liquid. ♏xl have proved fatal. Dose, ♏j–v.

Preparations containing Hydrocyanic Acid.

Aqua Laurocerasi, Cherry-laurel Water (Unofficial),—is a water distilled from the fresh leaves of *Prunus laurocerasus*, the common Laurel or Cherry Laurel, a small tree of the nat. ord. Rosaceæ, sub-order Amygdaleæ. The leaves contain a variable amount of Hydrocyanic Acid and a volatile oil. Dose, ♏v–xxx, cautiously.

Scheele's Dilute Hydrocyanic Acid (Unofficial),—is a 4 or 5 per cent. solution, and is highly dangerous even by inhalation.

Amygdala Amara, Bitter Almond (see its title), and its essential oil; also, various other members of the sub-order Amygdaleæ, including the official *Prunus Virginiana*, perhaps the unofficial *Prunus laurocerasus*, and the leaves and kernels of the peach and cherry trees, contain a proximate principle *Amygdalin*, and a ferment *Emulsin*, which in the presence of water react with each other, forming Hydrocyanic Acid, a volatile oil, and glucose. $C_{20}H_{27}NO_{11}$ (Amygdalin) $+ 2H_2O = C_7H_6O$ (Oil of Bitter Almond) $+$ HCN (Hydrocyanic Acid) $+ 2C_6H_{12}O_6$ (Glucose).

Other Cyanogen Compounds.

Potassii Cyanidum, Cyanide of Potassium, KCN,—a white, opaque salt, of alkaline reaction, bitter-almond taste and a peculiar odor when moist; soluble in 2 of water at 59° F., sparingly soluble in alcohol. Dose, gr. $\frac{1}{20}$–$\frac{1}{2}$. Locally a solution of gr. j–v to the ℥.

Potassii Ferrocyanidum, Ferrocyanide of Potassium, $K_4Fe(CN_6)_6 3H_2O$,—large, lemon-yellow prisms or tablets, efflorescent, odorless, of sweetish taste and neutral reaction, soluble in 4 of water, insoluble in alcohol. Employed in pharmacy as a test solution, and in the preparation of Ferrocyanide of Iron, Diluted Hydrocyanic Acid, and the Cyanides of Potassium and Silver. Rarely used medicinally. Dose, gr. v–xv.

PHYSIOLOGICAL ACTION.

PRUSSIC ACID is one of the most powerful and rapid poisons known, half a grain having proved fatal. Its action on the organism is one peculiar to itself, the inhalation of a strong preparation producing rapid insensibility and almost immediate exhaustion;—death from a full dose occurring by sudden paralysis of the heart, from a less but still a fatal dose, by paralysis of respiration. The symptoms are those of sudden and complete asphyxia, and some volitional movements may be made before death, unless the dose be very large. In cases in which the dose, though fatal, permitted of the observance of its effects, they were usually divisible into two marked stages, viz.: (1) Dyspnœa, slow and full pulse, giddiness, loss of muscular power. (2) Vomiting, dilated pupils, unconsciousness, spasms, muscular rigidity, and cessation of the heart's action. In poisonous, but not fatal doses, the following effects have been observed: feeble pulse, dilated pupils, turgid and dusky face, insensibility, convulsions or rigidity, but no paralysis. Large medicinal doses may produce salivation, irritation of the throat, dizziness, buzzing in the ears, headache, numbness, dusky countenance, staggering gait, sense of constriction of the chest, palpitation of the heart, a frequent or an abnormally slow pulse, a sense of great weariness and drowsiness. Post-mortem examination shows usually dilated pupils, the eyes having a marked glassy lustre, the cadaveric rigidity very great. The blood, in cases which have been rapidly fatal, may show the arterial color in both the arterial and the venous systems; but in slower cases it is dark and fluid, engorging both sides of the heart, the venous trunks, and the cerebral sinuses. The paralyzant action of the drug is chiefly exercised on the nerve-centres in the medulla; next on the peripheral afferent nerves, the spinal cord, the motor nerves, and finally on the muscular tissue. It stops the heart by irritation of the vagus-roots in the medulla, as well as by paralyzing the cardiac motor ganglia. It is said to form with hæmoglobin a compound (cyan-hæmoglobin), which does not readily give up oxygen. The odor of the acid is fragrant, resembling that of bitter almonds or peaches, and may be detected in the lungs shortly after death. The effects of a medicinal dose pass off in an hour at farthest.

Locally applied to the skin, Hydrocyanic Acid penetrates the epidermis and paralyzes the end-organs of the sensory nerves in the derma. It is rapidly absorbed from mucous surfaces.

CYANIDE OF POTASSIUM has similar action, but in addition has some few peculiar to itself. Locally used it produces dermatitis, with an eczematous eruption, and if applied to an abraded surface freely may cause fatal effects. Internally it has proved fatal in doses of 3 to 5 grains, with all the symptoms of Prussic Acid poisoning, but its action is less rapid. It is much used in photography, and many cases of poisoning by it have occurred in persons employed in that art.

Antagonists and Antidotes.

Atropine has antagonistic action, but is too slowly diffused to be of any value. *Ammonia* by inhalation, by the stomach, and by intra-venous injection, with cold affusion to the spine, and artificial respiration, are the measures most likely to avail in cases of poisoning where there is time to do anything. In poisoning by Potassium Cyanide give the *Sulphate of Iron*, producing Ferrocyanide of Iron (Prussian Blue). Then evacuation of the stomach, artificial respiration, and Ammonia by intra-venous injection.

THERAPEUTICS.

HYDROCYANIC ACID is used for its antispasmodic and sedative effects. In vomiting, whooping-cough, and coughs of spasmodic character, in asthma and other neuroses of the respiratory organs, in affections involving the pneumogastric nerve, vertigo and headache from stomachal derangements, gastralgia, painful dyspepsia, vomiting, etc., it is very efficient as a palliative. In acute mania and melancholia it has been used with advantage; and in various skin diseases, accompanied by itching, tingling, etc., its use as a lotion (♏xxx–ʒj ad ℥j Aquæ Rosæ) to the unbroken surface is prompt in relieving the pruritus and other distressing sensations.

Cyanide of Potassium in ointment (gr. v ad ℥j) is used to allay pruritus, and in solution (gr. iij–v ad ℥j) is applied locally with benefit in reflex headaches, and is used as a wash to remove nitrate of silver stains. It has been used internally in doses of gr. j for acute articular rheumatism, but such employment of it is highly dangerous.

Ferrocyanide of Potassium has been used in doses of 8 to 15 grains as an astringent and anodyne, but it is seldom employed in medicine.

Cherry-laurel Water has been extensively used as a flavoring agent, having a very agreeable taste. It is official in the British Pharmacopœia, and is supposed to be a rather elegant mode of administering Prussic Acid; but the uncertainty of its strength is such that it should never be used internally, except in very small quantities. It has been employed as an anæsthetic injection into the urethra prior to catheterization, and was formerly employed by ophthalmologists as an eye-wash in painful affections of that organ.

ACIDUM LACTICUM, Lactic Acid,—is a liquid composed of 75 per cent. of absolute Lactic Acid ($HC_3H_5O_3$) and 25 per cent. of water; nearly colorless, syrupy, odorless, of acid taste and reaction, freely miscible with water, alcohol, and ether, but nearly insoluble in chloroform. It is produced by the fermentation of sugar of milk, has a sp. gr. of 1.212, and is difficult to obtain pure. It enters into Syrupus Calcii Lactophosphatis. Dose, ʒss–℥ss, well diluted.

Physiological Action.

Lactic Acid is found in the stomach as a product of the food, and combines with bases in the blood, forming lactates, which, being oxidized, are converted into carbonates. It aids digestion, and promotes the appetite, but, in large doses, causes flatulence and much epigastric pain. Injected into the peritoneal cavity of animals, it excites endocarditis, and given in diabetes, it has produced acute rheumatism and rheumatic endocarditis. Hence its supposed causation of acute rheumatism when in excess and free in the blood. It dissolves false membranes and the phosphate of calcium.

Therapeutics.

It is used with benefit in diabetes, atonic dyspepsia, oxaluria, and in the lithic and phosphatic diatheses when due to imperfect digestion and assimilation. As a solvent of false membrane in croup and diphtheria it is unquestionably of great service. In chronic cystitis it arrests the ammoniacal decomposition of the urine. As the acid found in the shops is generally of poor quality, disappointment in its use may be expected.

ACIDUM NITRICUM, Nitric Acid,—is a liquid composed of 69.4 per cent. of absolute Nitric Acid, HNO_3, and 30.6 per cent. of water. It is colorless, fuming, very caustic and corrosive, of sp. gr. 1.420, strongly acid in reaction, and is obtained by the action of Sulphuric Acid on Nitrate of Potassium. Is only used externally as a caustic.

Preparations.

Acidum Nitricum Dilutum, Diluted Nitric Acid,—has of the above 1 part in 6 of Distilled Water, and contains 10 per cent. of absolute Nitric Acid. Dose, ♏iij–xv, well diluted.

Acidum Nitrohydrochloricum, Nitrohydrochloric Acid, Nitromuriatic Acid, Aqua Regia,—a golden-yellow, fuming, corrosive liquid, composed of Nitric Acid 4 parts, Hydrochloric Acid 15 parts. Is wholly volatilized by heat, readily dissolves gold-leaf, and a drop added to test-solution of Potassium Iodide liberates Iodine in abundance. Dose, ♏j–viij, well diluted.

Acidum Nitrohydrochloricum Dilutum, Diluted Nitrohydrochloric Acid,—consists of Nitric Acid 4, Hydrochloric Acid 15, Water 76 parts. Dose, ♏v–xx, well diluted.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action and uses of these agents are herein described with those of the other mineral acids, under the title ACIDUM HYDROCHLORICUM (see *ante*, page 65). Some special properties are as follows:

NITRIC ACID is an exceedingly powerful escharotic, but, as it coagulates and does not redissolve the albumen of the tissues, it forms a barrier to its own excessive action. The vapor may cause œdema of the glottis, intense bronchitis, etc., and death from suffocation. It is used for the destruction of chancres, warts, hemorrhoids, phagedenic ulcers, etc.; and internally in dilute form for bilious affections, as it is supposed to have a selective action on the liver. It also lessens phosphatic deposits in the urine, and acts as an astringent in the system, diminishing profuse secretion in bronchorrhœa and phthisis.

NITROHYDROCHLORIC ACID is also supposed to specially affect the liver. It is usefully employed in jaundice, dyspepsia, and the so-called bilious condition; also in frontal headache, situated just above the eyebrows, when unaccompanied by constipation, and in acidity of the stomach. In hepatic disorders it may be used in dilute form as baths, or applied to the hepatic region on compresses. The official dilute acid is of little use therapeutically, as it rapidly deteriorates, and the same may be said of the strong acid when standing long enough for the color to change to a lemon-yellow. The most efficient preparation is the strong acid freshly prepared, when it is of an orange-red color. This should be properly diluted when required for use, and should be constantly protected from light.

ACIDUM OLEICUM, Oleic Acid, $HC_{18}H_{33}O_2$,—is one of the constituent acids of oils and fats, obtained commercially as a secondary product in the manufacture of stearin candles. It is a yellowish oily liquid, semi-solid at 57° F., odorless, tasteless, and of neutral reaction, insoluble in water but soluble in alcohol, chloroform, benzol, benzin, turpentine, and the fixed oils. It dissolves most of the metallic oxides and the uncombined alkaloids, forming the so-called Oleates, which, however, are not pure chemical compounds, but merely compounds of the oxides or alkaloids, as the case may be, with oleic acid, dissolved in a great excess of the latter. Two of these are official, viz.—

Preparations.

Oleatum Hydrargyri, Oleate of Mercury—has 10 per cent. of the Yellow Oxide of Mercury, with 90 of Oleic Acid.

Oleatum Veratrinæ, Oleate of Veratrine—has 2 per cent. of Veratrine in 90 of Oleic Acid.

Unofficial Preparations.

Oleates (Oleata) of *Aconitine* (2 per cent.), *Atropine* (2 per cent.), *Morphine* (10 per cent.), *Morphine and Mercury* (2 per cent. morphine and 20 per cent. mercuric oxide), *Quinine* (25 per cent.), *Strychnine* (2 per cent.), *Arsenic* (gr. xx of oleate of arsenic to the ℥), *Aluminium*, *Bismuth*, *Copper*, *Iron*, *Lead*, *Silver*, *Zinc*, etc., are prepared by the manufacturing pharmacists, and are to be obtained in the shops. Most of them answer to the description given above, but several are Oleo-palmitates, or double salts of Oleic and Palmitic Acids, being prepared from oils which yield the latter acid in considerable quantity. Drs. Shoemaker and Wolff, of Philadelphia, have introduced, under the above names, several solid or semi-solid preparations, which they claim to be chemically true oleates, salts having no excess of either their acid or basic radicals. They are produced by the double decomposition of sodium oleate with solutions of neutral salts, the precipitates, washed and dried, being the oleates required. These oleates are claimed to be more stable than the official oleic solutions, and using less oleic acid are much less costly. Many of them may be used as dusting powders, or mixed with oil or lard to form ointments.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Oleic Acid is only used in making the Oleates, which were introduced by Marshall, in 1872, as substitutes for ointments, being cleaner, more elegant, and more penetrating, but decidedly more irritating if applied with friction. Their medicinal properties depend upon the bases employed, hence their actions and uses will be described under the corresponding basic heads. They should usually be diluted with an equal bulk of vaseline or olive oil before being rubbed into the skin, or they may produce a cutaneous eruption or even pustulation. As a rule they should be lightly spread over the surface with the finger or a brush. As parasiticides, the Oleates of Copper and Mercury are most efficient, and in skin diseases generally these preparations are rapidly coming into favor.

ACIDUM PHOSPHORICUM, Phosphoric Acid,—is a liquid composed of 50 per cent. of Orthophosphoric Acid, H_3PO_4, and 50 per cent. of water, and is obtained by oxidizing Phosphorus by Nitric Acid. It is strongly acid, odorless, colorless, and of sp. gr. 1.347.

Preparations.

Acidum Phosphoricum Dilutum, Diluted Phosphoric Acid,—has of Phosphoric Acid 20 parts in 80 of Distilled Water, sp. gr. 1.057, and contains 10 per cent. of Orthophosphoric Acid. Dose, ♏v–xxx, in sufficient water.

Phosphates of Ammonium, Ferrum, and Sodium, and the Syrupus Ferri, Quininæ et Strychninæ Phosphatum, are described under *Phosphorus*.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action and uses of Phosphoric Acid are described with those of the other Mineral Acids under ACIDUM HYDROCHLORICUM (see *ante*, page 65). It may be given in larger doses than the other acids without deranging digestion, and is therefore preferred in cases requiring acid treatment for a long period, as in diabetes, etc. It is considered of especial value in strumous affections, and is thought to diminish the growth of osseous tumors, and to dissolve phosphatic deposits. As it contains no free phosphorus, it cannot be used to obtain the effects of that drug.

ACIDUM PICRICUM, Picric Acid, Carbazotic Acid, Trinitrophenol, $C_6H_3(NO_2)_3O$ (Unofficial),—is obtained by the action of Nitric Acid on Carbolic Acid, or many other substances. It has recently been introduced as a test for albumen and sugar in the urine. A saturated aqueous solution has been used locally in erysipelas with some advantage. Some of its salts (Picrates of Ammonium, Iron, etc.) have been tried therapeutically, without any particular results. Powers as an antiperiodic and anthelmintic and against trichinæ have been urged for it, but experience has not supported these claims. Dose, gr. v–xv per diem.

Ammonium Picrate, in doses of gr. ½ to gr. jss, in pill, four times daily, has been used in the malarial fevers of India, in over 10,000 cases with most effective results.

ACIDUM SULPHURICUM, Sulphuric Acid,—is a strongly caustic and corrosive liquid, oily, inodorous, of strong acid reaction, composed of not less than 96 per cent. of absolute Sulphuric Acid (H_2SO_4) and 4 per cent. of water. It is obtained by the combustion of Sulphur and its oxidation by nitrous fumes. Its specific gravity should not be below 1.840, and it is miscible in all proportions with water and alcohol, with evolution of heat. Occasionally used as a caustic.

Preparations.

Acidum Sulphuricum Dilutum, Diluted Sulphuric Acid,—has of the strong acid 1 part to 9 of distilled water. Dose, ♏v–xv, well diluted.

Acidum Sulphuricum Aromaticum, Aromatic Sulphuric Acid, Elixir of Vitriol,—is Sulphuric Acid 20 per cent., diluted with Alcohol and flavored with Cinnamon and Ginger. It is not an acid, but rather an ether formed by reaction between the acid and the alcohol. Dose, ♏v–xv, well diluted.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action and uses of Sulphuric Acid generally are described with those of the other Mineral Acids under ACIDUM HYDROCHLORICUM (see *ante*, page 65). Its chief use internally is in lead-poisoning, to form the insoluble sulphate, and as a remote astringent in diarrhœa, hemorrhoids, hemorrhages, night-sweats, and mucous discharges. In choleraic diarrhœa and lead-poisoning it is generally administered in combination with Opium. The hemorrhages in which it is efficient are only those from mucous surfaces. It is exerted chiefly by the kidneys, part escaping by the bowels as sulphates, part also by the skin. Like the other mineral acids, it does not increase the acidity of the urine to any considerable extent. Its principal actions are those of an astringent, an anhydrotic and a hemostatic.

ACIDUM SULPHUROSUM, Sulphurous Acid,—is a colorless liquid, of sulphurous taste and very acid reaction, composed of about 3½ per cent. of Sulphurous Acid Gas (SO_2) and 96½ per cent. of water. It is prepared by heating Sulphuric Acid with charcoal and dissolving the gas produced in distilled water. Dose, ♏v–ʒj, largely diluted with water.

Preparations.

Potassii Sulphis, Sulphite of Potassium, $K_2SO_3.2H_2O$.—white, opaque, octahedral crystals, or a crystalline powder, somewhat deliquescent, of bitter, saline, and sulphurous taste, and a neutral or feebly alkaline reaction; soluble in 4 of water at 59° F., and in 5 of boiling water; sparingly soluble in alcohol. Dose, gr. iij–x.

Sodii Sulphis, Sulphite of Sodium, $Na_2SO_3.7H_2O$,—colorless, transparent, monoclinic prisms, efflorescent in dry air, of cooling, saline, and sulphurous taste, and neutral or feebly alkaline reaction; soluble in 4 of water at 59° F., and in 0.9 of boiling water, very slightly soluble in alcohol. Dose, gr. v–xx.

Sodii Bisulphis, Bisulphite of Sodium, $NaHSO_3$,—opaque, prismatic crystals, or a crystalline or granular powder, slowly oxidized in the air; of faint, sulphurous odor, a disagreeable taste, and an acid reaction; soluble in 4 of water and in 72 of alcohol at 59° F., in 2 of boiling water, and in 49 of boiling alcohol. By strong heat it is converted into sulphur and sulphate of sodium. Dose, gr. iij–x.

Sodii Hyposulphis, Hyposulphite of Sodium, $Na_2S_2O_3.5H_2O$,—large, colorless, monoclinic prisms or plates, efflorescent in dry air, of cooling and bitter taste, and neutral or faintly alkaline reaction; soluble in 1.5 of water at 59° F., and in 0.5 of boiling water, which partially decomposes it; insoluble in alcohol. Dose, gr. v–xx.

Magnesii Sulphis, Sulphite of Magnesium, $Mg,SO_3.6H_2O$,—a white, crystalline powder, gradually oxidized in the air, of bitter and sulphurous taste, and neutral or slightly alkaline reaction; soluble in 20 of water at 59° F., and in 19 of boiling water; insoluble in alcohol. Dose, gr. v–xxx.

Antagonists and Incompatibles.

All oxidizing substances change the Sulphites into Sulphates, and the mineral acids decompose them.

PHYSIOLOGICAL ACTION.

SULPHUROUS ACID has great affinity for oxygen, and is a powerful disinfectant and deodorizer, and very destructive to all plant life. The gas inhaled is irritant to the glottis, and may produce dangerous inflammation of the respiratory passages.

The SULPHITES and HYPOSULPHITES are partly decomposed by the acid of the stomach, sulphurous acid being given off, and the balance being converted into sulphates act as purgatives, and are absorbed, undergoing elimination as sulphates by the kidneys and bowels. They were formerly supposed to enter the blood and tissues as sulphites, and to arrest morbid processes of the zymotic character, but both these assumptions have proven erroneous.

THERAPEUTICS.

SULPHUROUS ACID GAS (Sulphurous Anhydride) is extensively used as a disinfectant, being the most powerful and convenient agent for this purpose. Sulphur is burned on a shovel or plate in the room to be fumigated, all outlets having been carefully closed. It is injurious to many fabrics.

SULPHUROUS ACID is used locally in many throat affections as a spray or by a mop. In diphtheria, stomatitis, aphthæ, ulcers of the tonsils, syphilitic and tuberculous laryngitis, chronic bronchitis, etc., it may be thus applied with great benefit. Morbid fermentation in the stomach with growth of penicillium and sarcinæ is quickly stopped by 5 to 60-minim doses in water, or by the sulphites in 20-grain doses. In parasitic skin diseases and foul wounds these agents are extremely useful as local applications.

The SULPHITES were used in zymotic and septic fevers as internal antiseptics on theoretical grounds, but their supposed value has not been realized.

ACIDUM TANNICUM, **Tannic Acid, Tannin,** $C_{14}H_{10}O_9$,—is a solid body in light-yellowish scales, of strongly astringent taste and acid reaction, obtained from powdered galls (see GALLA), by exposure for three days in a damp atmosphere, then macerating with ether, pressing, and drying the liquid portion. It is soluble in 6 parts of water, in 0.6 of alcohol, and in 6 of glycerin at 59° F. Dose, gr. j–xx in water, pill or capsule.

Preparations.

Unguentum Acidi Tannici,—is a 10 per cent. ointment made with Benzoinated Lard.

Trochisci Acidi Tannici,—each troche contains one grain of Tannic Acid.

Collodium Stypticum, Styptic Collodion,—has of Tannin 20, Alcohol, 5, Ether 20, Collodion 55 parts.

Suppositoria Acidi Tannici (Unofficial),—have Tannin 1 part to 5 of Cacao Butter.

Glyceritum Acidi Tannici (Unofficial),—has Tannin 1 part in 4 of Glycerin.

Vegetable Astringents contain some form of tannic acid, as *Quercitanic Acid* from *Oak-bark*, *Rhatania-tannic Acid* in *Rhatany*, etc. (For list, see page 64.) The official acid is *Gallo-tannic Acid*, being that produced from Galls.

Antagonists and Incompatibles.

Mineral acids, alkalies, persalts of iron, and salts of antimony, lead and silver, are chemically incompatible. Vegetable alkaloids and gelatin form insoluble precipitates with Tannic Acid.

PHYSIOLOGICAL ACTION.

TANNIC ACID is a powerful astringent. It precipitates pepsin and coagulates albumen, impairs digestion, stops peristalsis, and causes constipation. A part of that taken into the stomach unites with the pepsin and albumen, while a part is converted into Gallic and Pyro-gallic Acids, and in this form is both absorbed and excreted. It is a crystalloidal body, but combines with colloids, and is a valuable antidote in poisoning by the alkaloids and tartar emetic, with which it forms tannates which are nearly insoluble. Its continued use disorders digestion, irritates the mucous membranes, and produces emaciation. Injected into the veins it forms emboli and thus may cause death, but by the stomach it is non-toxic. Some authorities hold that Tannic Acid is merely Gallic Acid Anhydride; others believe that the difference between them is one of oxidation. Gallic Acid does not coagulate albumen or gelatin, while Tannic Acid does.

Therapeutics.

Tannic Acid is a more powerful astringent than Gallic Acid, and hence is preferred for local use and for astringent effect on the intestinal canal. It is well employed in hemorrhoids and hemorrhages from the lower bowel, in hematemesis, epistaxis, rectal ulcers or fissures, catarrhs and chronic affections of the mucous membranes, endocervicitis, conjunctivitis, dysentery and diarrhœas, eczema, impetigo and other forms of skin-disease, otorrhœa, bed-sores, prolapsus ani, and many other affections.

Styptic Collodion is used to stanch the bleeding from an open wound, to unite and protect incised or lacerated wounds, and to cover and change the character of foul ulcers.

ACIDUM TARTARICUM, Tartaric Acid, $H_2C_4H_4O_6$,—is a crystalline acid, prepared from *Acid Tartrate of Potassium* (Cream of Tartar), by neutralizing a solution thereof with Chalk and Calcium Chloride, then decomposing the Tartrate of Lime thus formed by Sulphuric Acid, evaporating and purifying. It occurs in colorless, transparent prisms, which are odorless, of acid taste and reaction, and soluble in 0.7 of water and in 2½ of alcohol at 59° F. Twenty grains exactly neutralize 27 of Potassium Bicarbonate, 22 of Sodium Bicarbonate, or 15½ of Ammonium Carbonate. Dose, gr. x–xxx.

Preparations.

Tartaric Acid is an ingredient of the Effervescing Powders (see under *Potassium*), and is used in making all the preparations of Aconite. Five Tartrates are official (see Index).

Physiological Action and Therapeutics.

The actions and uses of Tartaric Acid are similar to those of the other Vegetable Acids, as described under Acidum Aceticum (*ante*, page 58). It is chiefly employed in preparing refrigerant drinks.

ACONITUM, Aconite,—is the tuberous root of *Aconitum Napellus*, a perennial plant of the nat. ord. Ranunculaceæ, found in mountainous regions of Europe, Asia and N. America. The plant has deep-blue, helmet-shaped flowers, and leaves which have deeply-cut, wedge-shaped segments, exciting slowly when chewed a sensation of tingling in the tongue and lips. The root is conical and tapering, from 2 to 3 inches long, dark-brown externally, whitish internally, having a thick bark enclosing a seven-rayed, star-shaped pith, odorless, taste sweetish at first, soon becoming acrid. A minute portion, cautiously chewed, causes prolonged tingling and numbness. Its active principle is the alkaloid *Aconitine* (see below), which it contains in the proportion of .03 per cent. It also contains gum, sugar, *Aconitic Acid*, and several other principles, viz.—*Aconine, Napelline, Pseudaconitine, Lyctonine*, etc., concerning which there is much diversity of opinion. Dose, gr. ½–ij.

Other aconite-roots are those of *A. Cammarum, A. ferox*, and the Chinese or Japanese Aconite, *A. Chinense vel Japonicum*. From the latter an alkaloid is obtained, named *Japaconitine*, which is even more poisonous than pseud-aconitine. The Indian variety (*A. ferox*) contains pseud-aconitine, but does not yield aconitine. The former is considered to be more active than the latter, and Japaconitine more so than either the other two.

Preparations.

Abstractum Aconiti,—is twice the strength of the powdered drug or its fluid extract. Dose, gr. ¼–j.

Extractum Aconiti,—is at least four times as strong as the extract official in the U. S. P., 1870, which was prepared from the leaves, and is yet to be found in the shops. Dose, gr. ⅙–⅓.

Extractum Aconiti Fluidum,—each drop represents nearly one grain of the powdered drug: an alcoholic preparation. Dose, ♏ ½–ij.

Tinctura Aconiti,—Aconite 40, Tartaric Acid 0.4, Alcohol to 100 parts. Is about twenty-eight times as strong as the former tincture of the leaf. Dose, ♏ ½–iv.

Tinctures of Aconite root vary greatly in strength. In Fleming's Tincture 79 parts of aconite are used in preparing 100 of the tincture, in that of the Br. P. 16, the French 20, the German 10, while the Linimentum Aconiti (B. P.) is really a very strong tincture, of the strength of 1 to 1½. Probably the best and safest preparation for ordinary use is a 10 per cent. tincture, of which the maximum single dose for an adult is stated in the P. Ger. at ♏ix, and the maximum daily dose at ♏xxxv.

The best rule for the administration of aconite preparations is to give the minimum dose at intervals of 15 to 20 minutes, until the desired effect is produced.

Unofficial Preparations.

Aconitina, Aconitine, $C_{33}H_{43}NO_{12}$,—a white, and usually amorphous solid, of alkaline reaction, soluble in 150 of cold and in 50 of hot water; much more soluble in alcohol and ether. Is difficult to obtain of constant strength, some samples being all but inert, others extremely active. As obtained in the shops it is usually a mixture of several alkaloids. The *Aconitine crystalisée* of Duquesnel, which, according to Squibb, is a nitrate of aconitine, is considered to be the most active of those in the market. Dose, gr. $\frac{1}{200}$–$\frac{1}{50}$.

Oleatum Aconitinæ,—is a 2 per cent. solution in Oleic Acid, for external use. Duquesnel's crystals will not dissolve in Oleic Acid (Squibb).

Napellina, Napelline,—is weaker than Aconitine, and has been used in doses of gr. ½–⅓. It has lately been studied by Laborde, who claims for it most valuable hypnotic properties, and proposes to use it as a substitute for opium and chloral.

St. Jacob's Oil (a patent medicine),—is a weak Aconite Liniment, which also contains Ether, Alcohol, Turpentine, red coloring matter and water (Squibb).

PHYSIOLOGICAL ACTION.

Aconite is a powerful depressant of the sensory nerve ends, the heart, the respiration and the spinal system. It is also antipyretic, diaphoretic and diuretic. It acts chiefly on the peripheral ends of the sensory nerves, but paralyzes both the motor and sensory nerves—the sensory being affected first and from the periphery inwards, while the motor nerves are affected from the centres outwards. It relaxes the inhibitory apparatus of the heart, and paralyzes the cardiac muscle and its contained ganglia, the respiratory centres, and the spinal cord in all its functions—sensory, reflex and motor; but does not affect the cerebrum.

Its taste is bitter, acrid and pungent. Soon after the ingestion of even a small quantity, a sensation of numbness and a persistent tingling are felt in the tongue and lips. Full medicinal doses cause a sense of constriction in the fauces, irritation of the gastro-intestinal mucous membrane with increased secretion; sometimes nausea and vomiting, and severe pains in the joints and muscles; always more or less salivation, diaphoresis and diuresis; reduced respiratory power, cardiac rate and force; lowered arterial tension and temperature.

A lethal dose produces great muscular weakness, dim sight, dilated (sometimes contracted) pupils; shallow, irregular, and labored respiration, slow and weak pulse, cold surface, clammy sweat, great anxiety, numbness and tingling in the extremities, lowered body-temperature (2° to 3°), abolished sensation, impaired reflexes and motility, and finally death from paralysis of the heart and respiration, with or without convulsions, consciousness being preserved until near the end, when CO_2 narcosis sets in.

Aconite is rapidly diffused and slowly excreted, the effects of a full medicinal dose continuing for three or four hours. Applied externally, it paralyzes the sensory nerves of the part, producing its characteristic numbness and tingling.

Antagonists.

Caffeine, *Atropine*, *Morphine*, *Ether*, *Ammonia* and *Amyl Nitrite* antagonize its effects on the heart and respiration. *Digitalis* counteracts its heart action and the relaxation of cardiac inhibition. In Aconite poisoning, the stomach should be evacuated, warmth applied to the extremities, stimulants administered, artificial respiration if necessary, and the recumbent posture strictly maintained. Caffeine may be administered hypodermically and per orem.

THERAPEUTICS.

Aconite antagonizes the fever process, and rightly used is therefore one of the most valuable drugs we possess. It has well been called the "therapeutic lancet," and is certainly responsible to a great extent for the disuse of venesection. Its power over the circulation, respiration and transpiration renders it of the greatest value in all affections characterized by high resisting pulse, dry hot skin, and elevated body-temperature. It is especially useful in acute throat affections, the early stage of acute inflammations of the respiratory organs, catarrhal croup, acute pleuritis and peritonitis before the stage of effusion, simple and eruptive fevers, puerperal and surgical fevers, facial erysipelas, acute rheumatism, cardiac affections with overaction or hypertrophy and without valvular lesion, diarrhœa and dysentery from cold or exposure, menstrual suppression from chill, and neuralgia of the 5th (externally and internally), it having a selective influence on that nerve. It is also highly recommended in otitis, nervous palpitations, restlessness, and sick headache, as also in the acute stage of gonorrhœa.

Aconite is best administered in small doses frequently repeated; from half a drop to a drop of the tincture every fifteen minutes in a teaspoonful of water giving as a rule better results than a proportional quantity at longer intervals.

Aconitine has been remarkably efficient in trigeminal neuralgia, and Napelline in the same affection, and as an hypnotic.

ADEPS, Lard,—is the prepared internal fat of the abdomen of *Sus scrofa* (Pig), purified by washing, melting and straining. A soft, white, unctuous solid, of bland taste and neutral reaction, entirely soluble in ether, benzin, and bisulphide of carbon; composed of 38 per cent. of stearin and margarin, and 62 per cent. of olein. Lard forms 70 per cent. of Ceratum, and 80 per cent. of Unguentum, and enters into the composition of several of the official cerates.

Preparations.

Adeps Benzoinatus, Benzoinated Lard,—has 2 per cent. of Benzoin in powder incorporated by stirring.

Oleum Adipis, Lard Oil,—is a fixed oil expressed from lard at a low temperature.

PHYSIOLOGICAL ACTION.

The actions of the Oils and Fats will be described under MORRHUÆ OLEUM (which see).

THERAPEUTICS.

LARD is only used as an ingredient of ointments and cerates. LARD OIL is used in making the Unguentum Hydrargyri Nitratis, but has been proposed as an inferior substitute for Cod-liver Oil in cases where the taste of the latter is particularly offensive.

ÆTHER, Ether, Ethyl Oxide $(C_2H_5)_2O$,—in its absolute form is not official, the strongest preparation containing 6 per cent. of alcohol and some water. Considered as a generic term, an ether is analogous to a salt, as an alcohol is to a metallic hydrate. The particular ether officially so named is *Ethyl Oxide*, prepared from Ethyl Hydrate (Ethylic Alcohol) by a dehydrating agent with the aid of heat, and then purified by various processes. The agent used is Sulphuric Acid, hence this ether is improperly called "Sulphuric Ether," but the acid simply dehydrates the alcohol and remains in the retort, becoming constantly more diluted by the abstraction of water from the alcohol. Consequently H_2O is the difference between Alcohol and Ether. $(C_2H_6O)_2—H_2O = (C_2H_5)_2O$. The official ethers are the three following, viz.—

ÆTHER, Ether,—is a liquid composed of about 74 per cent. of Ethyl Oxide, and about 26 per cent. of Alcohol containing a little water; an inflammable, thin, very diffusive, clear and colorless liquid, having a burning, sweetish taste, and a neutral reaction, of sp. gr. about 0.750 at 59° F. Its vapor is heavier than air and forms therewith a highly explosive mixture. Ether is freely soluble in alcohol, chloroform, benzol, oils, and in 8 volumes of water at 59° F. It boils at the temperature of the body (98.6°), and is a solvent of oils, fats, resins, caoutchouc, gutta-percha, and many other substances. It has chiefly a pharmaceutical value.

ÆTHER FORTIOR, Stronger Ether,—is a liquid composed of about 94 per cent. of Ethyl Oxide, and about 6 per cent. of Alcohol containing a little water. Sp. gr. not above 0.725 at 59° F. It is the preparation employed for anæsthetic use, and is generally though improperly called "Sulphuric Ether," a term which belongs to Ethyl Sulphate $(C_4H_{10}SO_4)$. The dose of Æther Fortior for internal administration is ♏x–ʒj, in syrup.

ÆTHER ACETICUS, Acetic Ether, Acetate of Ethyl, $C_2H_5C_2H_3O_2$,—is an inflammable liquid, transparent and colorless, of ethereal and acetous odor, soluble in alcohol, ether, chloroform, and 17 of water. Sp. gr. 0.889 to 0.897. Is a constituent of Sp. Odoratus and Tr. Ferri Acetatis. Dose, ♏x–ʒj.

HYDROBROMIC ETHER, Ethyl Bromide, C_2H_5Br (Unofficial),—is not inflammable. Dose, internally and hypodermically, ♏x–ʒj.

HYDRIODIC ETHER, Ethyl Iodide, C_2H_5I (Unofficial),—is a colorless liquid, non-inflammable, and insoluble in water. Dose, inhaled, ♏xv.

[For the chlorinated Ethers see under CHLOROFORM.]

Preparations.

Oleum Æthereum, Ethereal Oil,—is a volatile liquid, consisting of equal volumes of heavy Oil of Wine and Stronger Ether. Used to prepare the Spt. Ætheris Comp., and as it occurs in commerce is usually a worthless preparation.

Spiritus Ætheris, Spirit of Ether,—has of Stronger Ether 30 parts, Alcohol 70. Dose, ♏x–ʒj.

Spiritus Ætheris Compositus, Hoffman's Anodyne,—contains Stronger Ether 30, Alcohol 67, Ethereal Oil 3 parts. Dose, ♏v–ʒj.

Spiritus Ætheris Nitrosi, Spirit of Nitrous Ether, Sweet Spirit of Nitre,—is an alcoholic solution of Ethyl Nitrite, $C_2H_5NO_2$, containing 5 per cent. of the crude ether. It turns acid with age, and should not be kept long. It is a constituent of Mist. Glycyrrhizæ Co. (3 per cent.). Dose, ʒss–℥ss. Its incompatibles are Potassic Iodide, Ferric Sulphate, Tr. Guaiaci, Tannic and Gallic Acids, and Antipyrine.

Anæsthetic Mixtures.

Nussbaum's has—Ether 3 parts, Chloroform 1, Alcohol 1.

Vienna General Hospital uses—Ether 9, Chloroform 30, Alcohol 9.

The "Vienna Mixture,"—Ether 3, Chloroform 1.

Committee of Medico-Chirurgical Society of London (1864) proposed—Ether 3, Chloroform 2, Alcohol 1.

PHYSIOLOGICAL ACTION OF ETHER.

ETHER is anodyne, antispasmodic, diaphoretic and anthelmintic; a cardiac and cerebral stimulant, an anæsthetic, and a narcotic poison. Given internally, it is one of the most powerful stimulants of the secretions, acting especially on the secretions of the stomach, salivary glands and pancreas. On the cerebrum and the motor and sensory nerves its action is similar to that of alcohol, but more prompt and less protracted. It is eliminated rapidly, chiefly by the lungs. Externally it is a powerful refrigerant and local anæsthetic; also rubefacient when rubbed into the skin.

Inhaled Ether produces at first faucial irritation, a sense of strangulation and cough; then a stage of excitement (cerebral intoxication), in which the face is flushed and the respiration and pulse are accelerated. A tetanic convulsive stage generally follows, the face being cyanosed, the muscles rigid, and the respiration stertorous. This soon subsides, and complete insensibility is established, the muscles being then relaxed, the reflexes abolished, and the cerebral functions suspended, the lower centres in the medulla carrying on the processes of respiration and circulation. If the inhalation be continued, these also become paralyzed, death usually resulting from slow paralysis of respiration, the heart pulsating long after breathing has ceased. [Chloroform usually paralyzes the heart.] If the inhalation be discontinued before the lower centres are affected, the patient gradually emerges from the condition of insensibility, and, as the narcosis subsides, vomiting is usually experienced.

COMPARED WITH CHLOROFORM.

Ether is less irritant than Chloroform to the mucous membranes when swallowed, but its vapor is more irritant to the air-passages. It is more of a general stimulant, and less depressant to the heart and circulation. It does not clot the blood. Its vapor is very inflammable, less pleasant to inhale, slower in action, has a longer stage of excitement, and a less profound narcosis, and causes a greater degree of vomiting. It is much less dangerous than Chloroform, death from the inhalation of Ether occurring slowly and usually by paralysis of respiration—from Chloroform it is almost always sudden, and by paralysis of the heart. Ether has undoubtedly caused a number of deaths, besides several which occurred some hours after the anæsthesia. The reported cases of fatal Chloroform narcosis number about 500, those from Ether about 20.

Modes of Dying from Anæsthetics.

(1.) From sudden paralysis of the cardiac ganglia, early in the inhalation, by reflex action proceeding from some peripheral injury before complete anæsthesia is produced.

Thus, in the extraction of teeth, a small quantity of Chloroform having been administered, the heart is enfeebled, and the action of the cerebral hemispheres suspended, but not those of the basal or medullary ganglia. If at this stage the 5th nerve be irritated, by the intimate relation of its nucleus with that of the pneumogastric reflex inhibition may be transmitted over the latter, arresting the cardiac ganglia. The stage of incomplete anæsthesia is always a dangerous one in which to perform any operation around the distribution of the 5th nerve.

(2.) In the stage of rigidity, from tetanic fixation of the respiratory muscles, the blood backing up on the venous side, and the arresting of the heart's action, respiration ceasing before the cardiac action is stopped.

(3.) In the stage of complete relaxation, by paralysis of respiration; or by paralysis of the tongue, causing obstructed respiration.

(4.) In the same stage, by paralysis of the motor ganglia of the heart.

(5.) From depression of the functions by chloroform narcosis, and from shock,—and may occur in the anæsthetic state, or afterwards.

Contraindications for Anæsthesia are—fatty degeneration or dilatation of the heart, renal and pulmonary disease, enlarged tonsils, cerebral tumor, and chronic alcoholism—particularly the first and last named.

Dangerous Symptoms should be met by withdrawing the vapor and inverting the patient head downwards, drawing the tongue forwards, and applying a cold douche to the face and chest. *Atropine* hypodermically is an agent of great value in combating the cardiac failure,—artificial respiration and faradization of the respiratory muscles if breathing ceases. *Amyl Nitrite* by inhalation, or *Ammonia* hypodermically. Heat to the body and limbs.

Notes on Other Anæsthetics.

A comparison of these agents in respect to their safety has been lately made by Dr. Richardson, who considers *Methylic Ether* to be the safest of all, and the others as follows:

Safe are—Ethyl Bromide, Ethyl Chloride, Ether, Ethene (olefiant gas), Ethene Chloride, Methyl Bromide, Methyl Chloride, Methyl Ether, Methene Chloride, Methane (marsh gas), Nitrous Oxide.

Of doubtful value are—Amylene, Amyl Chloride, Butyl Chloride, Benzene (benzol), Carbon Disulphide, Carbon Dioxide, Carbon Tetrachloride, Methyl Alcohol, Methylal, Spirits of Turpentine.

Dangerous are—Amyl Hydride, Butyl Hydride, Carbon Monoxide, Ethyl Hydride. Chloroform and Ethene Dichloride are considered useful, but requiring care.

PHYSIOLOGICAL ACTION OF OTHER ETHERS.

Hydriodic Ether is an antispasmodic and a general stimulant; also an anæsthetic if inhaled for a sufficiently long time. Its use as a medicinal agent is chiefly to bring the system rapidly under the influence of iodine. It increases appetite, stimulates the action of the heart, gives vivacity to the general feelings and activity to the intellect.

Hydrobromic Ether has a not unpleasant odor, produces but little irritation of the air-passages, has very brief stages of excitement and rigidity, and but a short stage of insensibility, with prompt awakening and but little of the mental confusion and excitement consequent on the use of the other anæsthetics. It is not inflammable, acts quickly, and is a good local anæsthetic. Its actions in other respects correspond with those of Ether.

NITROUS ETHER is a mild diaphoretic, a diffusible stimulant, a carminative, and an efficient diuretic. On the blood it acts similarly to Amyl Nitrite, diminishing oxygenation, relaxing the peripheral vessels, accelerating the heart's action, and thus lowering arterial tension. Relaxing the renal and cutaneous vessels, it is diuretic and diaphoretic.

ACETIC ETHER has a pleasant odor and taste, forming agreeable combinations with other carminatives as a stimulant and antispasmodic.

THERAPEUTICS.

When diluted with alcohol Ether mixes readily with water, and may be administered internally with advantage in indigestion of fats, and to aid the digestion of Cod-liver Oil. It is also given in hysteria to relieve the paroxysm and flatulence, and in hepatic colic from calculi, Ether with Turpentine (Durande's solvent remedy), which acts only as an anodyne and antispasmodic, is considered by some as of great value.

Subcutaneously Ether is used in the algid stage of cholera, sudden cardiac depression, neuralgia, and in the adynamia of hemorrhage, pneumonia and the eruptive fevers.

Local anæsthesia by the Ether-spray affords great relief in neuralgia of superficial nerves, lumbago, chorea, and spinal irritation. In minor surgical operations it is a valuable method.

AS AN ANÆSTHETIC the vapor of Ether is less prompt than that of Chloroform, but is equally efficient and much safer. It should be inhaled in as concentrated a form as possible, and will then produce insensibility in from 5 to 10 minutes. If a light be in the room it should be high above the patient. A grate-fire or gas-stove in the vicinity is very dangerous. [Compare Chloroform.] Besides its surgical uses ether-anæsthesia is employed in neuralgia, cancer, tetanus, chorea, colic, delirium, puerperal mania and convulsions, infantile convulsions, hystero-epilepsy, epileptic seizures, laryngismus stridulus, whooping-cough, and asthma. The unpleasant after-effects may be greatly modified if not entirely prevented by the previous administration of Morphine (gr. $\frac{1}{12}$–$\frac{1}{8}$) and Atropine (gr. $\frac{1}{120}$) subcutaneously.

HYDROBROMIC ETHER had a short period of popularity as an anæsthetic, but fell into disrepute after a few cases of death under its influence, which were probably not due to the agent used (Levis' and Sims' cases). Its action is less prolonged than that of Ether, but it has many advantages, requiring only ʒj to ʒij rapidly given, and being uninflammable. Its inhalation has been of especial value in hysteria, epilepsy, chorea and other spasmodic disorders; and it has been employed subcutaneously in place of Ether in the treatment of such spasmodic affections as whooping-cough, chorea, etc.

THE COMPOUND SPIRIT OF ETHER (Hoffman's Anodyne) is an admirable agent in gastralgia, colic, flatulence, syncope, etc., also in the various manifestations of the hysterical paroxysm. In combination with the camphorated tincture of Opium it is often remarkably efficient in checking the diarrhœa of hot weather.

Spirit of Nitrous Ether is used as a diaphoretic, a diuretic and a carminative; also in expectorant mixtures, as an antipyretic in febrile affections, and to relieve pain in angina pectoris, dysmenorrhœa and asthma.

Hydriodic Ether may be obtained in glass capsules containing five minims each, and is used by inhalation in chronic pulmonary disorders, cardiac dyspnœa, spasmodic affections of the bronchi and larynx, asthma, and in catarrhal laryngitis with dyspnœa. It is not employed as an anæsthetic.

AGARICUS ALBUS, Purging Agaric (Unofficial),—is a fungus, occurring in large white spongy pieces, obtained from the European larch. It contains *Agaricin*, a crystalline substance, and *Agaric Acid*; also from 40 to 70 per cent. of resins.

Physiological Action.

The taste of Purging Agaric is first sweetish, then becoming very acrid and bitter. The powder inhaled causes violent sneezing, and taken internally in full doses it produces watery stools. Small doses check diarrhœa and dysentery, and diminish the secretions of the bronchi and mammæ.

Therapeutics.

Agaricus Albus was formerly employed as a drastic purgative, in doses of gr. xxx to ʒj. It has lately been used, with much success, in 15-grain doses of the powder, or 3 grains of the alcoholic extract, to check the night-sweats of phthisis.

AGARICUS CHIRURGORUM, Surgeon's Agaric (Unofficial),—is the interior portion of the fungus *Polyporus fomentarius*, which grows on the trunks of beeches, birches, and oaks in Europe. It is prepared for use by boiling in weak lye and beating with mallets, and then occurs in light, thin, yellowish-brown pieces, soft and pliable, without odor or taste. It is almost pure cellulose. It was formerly used as a mechanical hemostatic, and for the purpose of moxa. When soaked in a strong solution of Potassium Nitrate or Potassium Chlorate and dried, it is very inflammable, and is then called *Spunk*.

AGARICUS MUSCARIUS, Amanita Muscaria, Fly-Agaric (Unofficial),—is a poisonous mushroom, of a disagreeable odor and a burning, acrid taste, used in infusion with milk for poisoning flies, and used by the Tartars as an intoxicant. It contains an actively toxic alkaloid, *Muscarine*, $C_5H_{13}NO_2$, of syrupy consistence, odorless and tasteless, soluble in water and alcohol, and readily dissolved out by water and dilute acetic acid, so that a doubtful mushroom may be easily rendered innocuous. It may also be produced synthetically, but it is doubtful whether the article so prepared is as active as the natural product. It has been made from Choline by Schmiedeberg.

Preparations.

Muscarina, Muscarine (Unofficial),—Dose, gr. $\frac{1}{5}$–gr. ij. It may be used hypodermically in watery solution.

Muscarinæ Nitras, Nitrate of Muscarine (Unofficial),—may be used hypodermically in doses of from gr. $\frac{1}{10}$ to gr. $\frac{3}{4}$.

PHYSIOLOGICAL ACTION.

Muscarine is a powerful respiratory and cardiac depressant, paralyzing the respiratory centre and arresting the heart in diastole by paralyzing its motor ganglia while stimulating its inhibitory apparatus. It lowers the arterial tension, produces profound salivation, lachrymation and sweating, contracts the pulmonary vessels, causing intense dyspnœa, and increases the intestinal, hepatic and pancreatic secretions, but markedly diminishes the renal. It disturbs the gastro-intestinal tract, causing tetanic intestinal contractions, severe colic, vomiting and purging. It produces spasm of the accommodation, marked myosis and contraction of the pupil when given internally, but dilates the pupil widely when locally applied. [Gelsemium does so also.] Under its action the body temperature is decidedly reduced, and the excretion of waste-products is lessened. It is eliminated unchanged by the kidneys.

Agaricus acts as an intoxicant to the cerebrum, producing more vertigo and delirium than Alcohol, followed by profound sopor with lowered reflexes, perhaps coma and death.

Antagonists.

Atropine exactly opposes Muscarine, and *vice versâ;* no example of physiological antagonism being so complete in all particulars. When a frog's heart is arrested by the topical action of a minute quantity of Muscarine, the application of a little Atropine will immediately paralyze the inhibition and restore the pulsations. An equally prompt antagonism runs through their entire spheres of action. Digitaline is to some extent antagonistic; so also is Eserine.

THERAPEUTICS.

Muscarine has been as yet little used in medicine, but it will probably prove to be a valuable drug. It has been long used, with marked benefit, in the night-sweats of phthisis. A tincture of Agaricus has been found beneficial in ataxic typhus, chorea, and chilblains. Muscarine promises to be of great value in inflammations characterized by copious exudation, especially eye-inflammations, catarrhal jaundice, recent hemorrhoids, acute bronchitis, pulmonary hemorrhage, incipient pulmonary congestion, diabetes of both forms, and in constipation due to intestinal torpor and deficient secretion, accompanied by a torpid liver and difficult digestion of fats. In the latter affection it should be given in small doses, gr. $\frac{1}{30}$, thrice daily.

AILANTHUS, Tree of Heaven (Unofficial),—is the bark of *Ailanthus glandulosa*, a well-known shade tree, of the nat. ord. Simarubaceæ, indigenous to China, but cultivated elsewhere. It contains an oleo-resin and a volatile oil, on which its properties probably depend. Dose, gr. x–ʒj.

Preparations.

Extractum Ailanthus Fluidum (Unofficial),—Dose, ♏x–ʒj.
Tinctura Ailanthus (Unofficial), Dose, ♏x–ʒij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS..

Ailanthus is a decided nauseant, and a drastic purgative, causing also vertigo, weakness, cold sweats, dull headache, pains in the back, numbness and tingling in the limbs. It paralyzes the cerebrum and spinal cord of animals, impairment of motility beginning in their hind extremities. The cardiac action, at first increased, soon slows, the pulse becoming small and weak, and the respiration depressed, death occurring from paralysis of respiration. It is a good tæniafuge.

Ailanthus is used against tapeworm, a decoction of the fresh bark (ʒj ad ℥iv), or the oleo-resin in drachm doses, being very efficient. It has also been well employed in malignant scarlatina, with dark and partial eruption, insensibility, delirium, and other cerebral symptoms.

ALCOHOL,—is a liquid composed of 91 per cent. by weight (94 per cent. by volume) of *Ethyl Alcohol*, C_2H_5HO, and 9 per cent. by weight (6 per cent. by volume) of water. Sp. gr. 0.820 at 60° F., and 0.812 at 77° F. An inflammable, transparent, colorless, mobile and volatile liquid, of agreeable odor and burning taste. Obtained by the distillation of fermented saccharine fluids. Used in making all the Tinctures and Spirits; also in some of the Liniments, Liquors and Mixtures.

Preparations.

Alcohol Dilutum, Diluted Alcohol,—consists of Alcohol and Distilled Water, equal parts of each. Sp. gr. 0.928 at 60° F.

Spiritus Frumenti, Whiskey,—obtained from the distillation of fermented grain, rye or corn (U. S.), barley (Scotch), and at least two years old. Sp. gr. 0.917 to 0.930. Has an alcoholic strength of 44 to 50 per cent. by weight; also Ethers developed by the action of acetic and butyric acids on the alcohol, and traces of Amylic Alcohol (fusel-oil) even in the best.

Spiritus Vini Gallici, Brandy,—obtained from the distillation of fermented grapes, and at least four years old. Sp. gr. 0.925 to 0.941. Has an alcoholic strength of 39 to 47 per cent. by weight, and Œnanthic and other Ethers developed by age. Pale Brandy is colored by the cask, the dark has caramel to color it. Is often prepared artificially by adding to high wines Acetic or Nitric Ether, Caramel, and Logwood or Catechu for astringency.

Spiritus Odoratus, Perfumed Spirit, Cologne-water,—prepared by adding to 800 parts of Alcohol, Water 158, Acetic Ether 2, Oil of Bergamot 16, Oil of Lemon 8, Oil of Rosemary 8, Oil of Lavender Flowers 4, and Oil of Orange Flowers 4 parts. A perfume or ingredient of lotions.

Vinum Album, White Wine,—should contain from 10 to 12 per cent. by weight of absolute alcohol, and is made by fermenting the unmodified juice of the grape, freed from seeds, stems and skins.

Vinum Album Fortius, Stronger White Wine,—should contain 20 to 25 per cent. by weight of absolute alcohol, and is made by adding 1 part of Alcohol to 7 of Vinum Album. Is simply a formal recognition of the fact that the stronger sherries are artificially made. Used to prepare the official Vina (Wines).

Vinum Rubrum, Red Wine,—should contain from 10 to 12 per cent. by weight of absolute alcohol, and is made by fermenting the juice of colored grapes in presence of their skins.

Vinum Aromaticum, Aromatic Wine,—consists of Stronger White Wine 94 per cent., with Lavender, Origanum, Peppermint, Rosemary, Sage and Wormwood, of each 1 per cent.

Unofficial Alcoholic Preparations.

Rectified Spirit, sp. gr. 0.835,—has 85 per cent. by weight of absolute alcohol, and no fusel oil. Is often spoken of as "56 over proof," meaning that to reduce 100 volumes of it to the strength of proof spirit, requires 56 volumes of water.

Proof Spirit, sp. gr. 0.920,—contains 49 per cent. by weight of absolute alcohol, with a peculiar oil and other foreign matters.

Rum,—is obtained from the distillation of fermented molasses, and has about 42 per cent. by weight of alcohol.

Gin,—has about the same alcoholic strength as rum, and approaches very nearly to the official Spiritus Juniperi Compositus. It is usually distilled from rye or barley, and flavored, in Holland, with juniper berries and hops, in England, often with oil of turpentine, various cheap aromatics, acetate of lead, sulphate of zinc, cayenne pepper, etc. Pure gin is slightly diuretic, from the oil of juniper contained in it.

Vinum Portense, Port Wine,—is not a natural wine, spirit being added during the process of manufacture, and the alcoholic strength raised to 30 or 40 per cent.

Vinum Xericum, Sherry Wine,—a dry, spirituous white wine, generally made to order by the dealers, and having from 20 to 35 per cent. of alcohol.

Sparkling Wines, as Champagne, Hock, Catawba,—are more or less sweet, and charged with carbonic acid, being bottled before fermentation is completed and the grape-sugar all converted into alcohol. They contain 8 to 10 per cent. of absolute alcohol.

Sweet Wines, as Burgundy, Tokay, Muscatel, Malaga, Angelica, Madeira, etc ,—are of low alcoholic strength, 6 to 7 per cent., unless fortified.

Light Red Wines, as Claret, Red Rhine, Concord,—have 5 to 7 per cent. alcohol, tannic acid, grape coloring matter, etc.

Dry Acid Wines, as Rhine and Moselle wines, California Hock, Ohio, and Kelley-Island Catawba,—in these fermentation is complete, and the alcoholic strength from 5 to 7 per cent.

Beer, *Ale* and *Porter*,—are fermented liquors, made from malted grain, with hops and other bitters added. Beer is made by slow fermentation, the yeast sinking; Ale by rapid fermentation, the yeast floating. Their alcoholic strength is from 2 to 3 per cent. in beer, to 4 to 6 per cent. in ale and porter,—and they also contain malt extract, carbonic acid, lactic acid, various aromatics, potassium and sodium salts, etc.

Koumiss,—is obtained by the fermentation of milk, that of the mare being used in Tartary, where it is largely employed as a food. It contains from 1 to 3 per cent. of alcohol, sugar, lactic acid, casein, fat, salts, carbonic acid and ethers.

PRINCIPAL ALCOHOLS.

ETHYLIC ALCOHOL, Ethyl Hydrate, C_2H_6O,—Grain-spirit.

METHYLIC ALCOHOL, Methyl Hydrate, CH_4O,—Wood-spirit.

AMYLIC ALCOHOL, Amyl Hydrate, $C_5H_{12}O$,—Potato-spirit, Fusel Oil. Occurs also in the excessive distillation of fermented grain, after the ethylic alcohol has distilled over.

PHENYLIC ALCOHOL, Phenol, Carbolic Acid, C_6H_6O,—from coal-tar (see page 60).

Composition, etc., of Alcohols.

An Alcohol is a volatile organic compound, which contains no N, has a great affinity for water, and reacts with acids, forming H_2O and ethers. Alcohols are therefore analogous to the metallic hydrates, and Ethers to salts. They are obtained by distillation from the fermented product of grape-sugar, or some substance (as starch) easily converted into grape-sugar, which, in the presence of certain low vegetable organisms (as the yeast-plant), splits up into Alcohol and CO_2; and may be made synthetically by shaking Olefiant gas (C_2H_4) with strong Sulphuric Acid), then diluting and distilling. $C_2H_4 + H_2O = C_2H_6O$, Ethylic Alcohol. Absolute Ethylic Alcohol, which is only used for chemical testing, is made by shaking Rectified Spirit with Potassium Carbonate, decanting, and distilling with slaked lime.

Alcohol very slowly oxidized forms Aldehyde (C_2H_4O), if less slowly, Acetic acid ($C_2H_4O_2$), if quickly as in burning, CO_2 and H_2O, which are in all cases the ultimate products of its continued oxidation.

PHYSIOLOGICAL ACTION.

Alcohol is a cerebral excitant and depressant and a narcotic poison. It is anæsthetic, antiseptic, and antiparasitic, a mild counter-irritant, and it coagulates albumen by abstracting its water. It is very diffusible, and is partly oxidized by the organism, part being excreted unchanged.

In small doses, Alcohol relaxes the vessels, stimulates the gastric glands, promotes appetite and digestion, lessens the elimination of waste-products (urea and CO_2), causes a subjective sensation of heat, and slightly raises the body temperature. It briefly stimulates the heart, prolonging its systole and reducing the length of the diastole, and increases the functional activity of all the organs. A portion is oxidized by the organism (about ℥jss in twenty-four hours), yielding force which is utilized as nervous, muscular and glandular power.

The continued use of small or moderate doses congests the stomach and liver, over-stimulating the gastric glands and the hepatic cells to the production of pathological secretions, causing gastric catarrh and morning-vomiting of mucus, and impairing digestion. By irritation it sets up hyperplasia of the submucous connective tissue (sclerosis), especially in the stomach, brain, kidneys and liver (cirrhosis); produces fatty degeneration (steatosis) of the blood, the arterial walls, and the various organs, and depresses the heart and the arterial tension. Epilepsy, paraplegia, amaurosis and insanity may result from the long-continued use of spirits, alcohol having an especial affinity for the nervous system. The malt liquors (beer, ale, etc.) are less prone than the spirituous to affect the brain, but are even more apt to set up fatty degeneration of the liver and heart.

In large doses Alcohol precipitates pepsin and destroys its activity as a ferment, arrests digestion, produces exhilaration, intoxication, hallucinations, delirium, muscular incoördination, depression of the heart, lowered arterial tension and body temperature, abolished reflexes and coma.

A toxic dose, after a very brief period of excitement, produces insensibility, stertorous breathing, dilated or contracted pupils, complete muscular resolution, and death by paralysis of the heart and respiration.

Acute Alcoholism may be confounded with apoplexy, opium narcosis, concussion of the brain, and even acute pneumonia,—the differential diagnosis being impossible to make in the stage of deep coma. The pupils are not a trustworthy indication, as in alcoholism they may be either dilated or contracted.

Alcohol is a food within narrow limits, ℥jss per diem being the probable quantity which the adult organism can oxidize, more than this being probably poisonous, as it sets up structural changes in the various organs, and lowers the power of resistance to morbific influences. It has frequently caused an intractable form of phthisis. The very young and the very old stand more alcohol relatively than the adult. It has been proven to exist normally in the human organism.

Treatment of Acute Alcoholism.

The stomach should be evacuated, Ammonia by inhalation cautiously, warmth applied to the extremities, cold affusion to the head, faradism of the muscles of respiration. Milk, mucilaginous drinks, black coffee, are useful afterwards. Lupuline as a substitute stimulant, Chloral (cautiously) to secure sleep, but is dangerous in old topers. Capsicum is excellent for the same purpose in 20 to 30-grain doses. Nutritious, digestible diet in fluid form and small quantity frequently repeated.

THERAPEUTICS.

Though Alcohol is decidedly injurious in health, in disease it is a most useful agent. It is invaluable in diphtheria, poisoning by cardiac depressants and snake-venom, adynamic fevers and cardiac failure from any cause. It is an excellent dressing to wounds and bed-sores, may prevent colds from exposure by relaxing the peripheral vessels and restoring the balance of the circulation, and in phthisis it does good if it promotes digestion and assimilation. In atonic indigestion of nervous and depressed subjects, cholera infantum, diarrhœa, etc., brandy is universally found to be beneficial. In the vomiting of yellow fever or of sea-sickness iced champagne is very efficient. In anæmia and chlorosis good red wines are almost indispensable, as also in convalescence from acute diseases, sudden and profuse hemorrhage, and in many other morbid conditions.

KOUMISS is an excellent food and stimulant in feeble digestion, phthisis, chronic bronchitis, and in all adynamic states in which the effects of alcohol and nutrients are indicated. The stomach is very tolerant of koumiss even when it will bear nothing else, and as it increases the body nutrition remarkably it is of great value in the treatment of all the cachexiæ. Each quart is estimated to contain 4 ounces of solid food, besides 1 to 3 per cent. of alcohol. (See also under KUMYSS.)

ALLIUM, Garlic,—is the bulb of *Allium sativum*, a plant of the nat. ord. Liliaceæ, indigenous to Asia, but cultivated in Europe and America. It is sub-globular and compound, consisting of eight bulblets, covered by dry, membranous scales. Its odor is pungent and disagreeable and its taste is warm and acrid. It contains a *Volatile Oil*, which consists mainly of the Sulphide of Allyl $(C_3H_5)_2S$, on which its qualities depend. Allied species are ALLIUM CEPA, the Onion, and ALLIUM PORRUM, the Leek.

Syrupus Allii,—contains 15 per cent. of Garlic, Sugar 60, Dilute Acetic Acid 40 parts. Dose, ʒj-iv, according to age.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Garlic, Leeks and Onions are stimulant to the digestion and to the nervous system, and are supposed to have a special influence upon the bronchial secretion. Garlic is also thought to be emmenagogue and anthelmintic. It promotes diaphoresis and diuresis, and acts as a tonic and carminative. Many persons use it as a condiment. Large doses will often produce gastric irritation, flatulence, hemorrhoids, headache and fever. In domestic practice it is frequently employed as an external application in the cutaneous eruptions of children, and as a poultice or liniment in infantile disorders of many kinds. Internally it is of real benefit in feeble digestion and flatulence, chronic catarrhal affections of children, in nervous and spasmodic coughs and in nervous vomiting.

ALNUS, Alder-Bark (Unofficial), is the bark of *Alnus serrulata*, the common American Alder, a small tree of the nat. ord. Betulaceæ. It has similar properties to those of *A. glutinosa*, the European Alder, and *A. urcana*, the Tag Alder, and contains a tannic acid, an oil and a resin. The bark and leaves are astringent and bitter, and are chiefly used as gargles for the throat, as local applications to wounds and ulcers, and to restrain the secretion of milk. Dose of the powdered bark gr. x, in decoction or infusion, several times a day. The Tag Alder is highly recommended as a hemostatic.

ALOE, Aloes,—is the inspissated juice of the leaves of *Aloe socotrina*, a plant of the nat. ord. Liliaceæ, inhabiting the island of Socotra and the eastern coast of Africa near the southern shore of the Red Sea. It has orange-colored flowers and resembles in appearance the American aloe or century-plant (*Agave americana*). It occurs in soft masses, hard exteriorly, of a yellowish-brown color, fragrant odor and bitter taste, soluble in alcohol and in boiling water, and containing a peculiar volatile oil, a resin and *Soaloin*, $C_{15}H_{16}O_7$, a variety of the principle *Aloin*, which is common to all varieties of aloes,—also *Aloetic* and *Chrysammic Acids*. Dose, gr. j–v.

Other varieties are ALOE BARBADENSIS, Barbadoes Aloes, from *Aloe vulgaris;* and ALOE CAPENSIS, Cape Aloes, from *Aloe ferox*, the first of which is official in the Br. Phar.

Preparations.

Aloe Purificata, Purified Aloes,—prepared by heating with alcohol, straining and evaporating. Is almost entirely soluble in alcohol. Dose, gr. j–v.

Extractum Aloes Aquosum,—prepared by mixing 1 with 10 parts of Boiling Distilled Water, standing 12 hours, decanting, straining and evaporating. Dose, gr. ss–v.

Tinctura Aloes,—has of Aloes 10, extract of Glycyrrhiza 10, Diluted Alcohol to 100 parts. Dose, ʒ ss–ij.

Tinctura Aloes et Myrrhæ,—Aloes 10, Myrrh 10, Alcohol to 100 parts. Dose, ʒ ss–ij.

Vinum Aloes,—has of Aloes 6, Cardamom 1, Ginger 1, Stronger White Wine to 100 parts. Dose, ʒ j–iv.

Pilulæ Aloes,—each has of Aloes gr. ij with the same quantity of Soap.

Pilulæ Aloes et Asafetidæ,—each contains gr. 1⅓ of each ingredient.

Pilulæ Aloes et Ferri,—each pill contains gr. j each of Aloes, Sulphate of Iron and Aromatic Powder, with Confection of Rose.

Pilulæ Aloes et Mastiches, Lady Webster's Pill,—each has of Aloes gr. ij, Mastic gr. ss, Red Rose gr. ss.

Pilulæ Aloes et Myrrhæ,—each contains of Aloes gr. ij, Myrrh gr. j, Aromatic Powder gr. ss, mixed with Syrup.

Pulvis Aloes et Canellæ (Unofficial),—contains the powdered bark of *Canella alba*. Dose, gr. v–xx.

Aloes is also a constituent of Pilulæ Rhei Compositæ and Tinctura Benzoini Composita—(which see.)

PHYSIOLOGICAL ACTION.

Aloes is a tonic-astringent and resin-bearing purgative, an emmenagogue and an anthelmintic against the thread-worm. As a cathartic it acts chiefly on the lower half of the large intestine, in doses of gr. j–iv producing in about 10 hours copious soft evacuations with some griping pain. This effect is produced whether the drug be taken internally or absorbed from an exposed surface, so that it probably diffuses into the blood and is eliminated by the mucous membrane of the colon. It is a stomachic tonic in small doses, a stimulant of the hepatic functions, and an excitant of the pelvic circulation. It may cause abortion in the female and priapism in the male, and is said to have frequently produced hemorrhoids, which if existing it will certainly aggravate. Given to nursing mothers it imparts a purgative quality to their milk.

THERAPEUTICS.

Aloes is chiefly used in combination with Iron, Myrrh, Nux-vomica, etc., for amenorrhœa and chronic constipation with atonic dyspepsia and hypochondriasis. It is curative in certain forms of hemorrhoids, especially those occurring after delivery and where the condition is not one of active pelvic congestion. It is also used internally and as an injection in gonorrhœa, and for simple atonic jaundice. It must be avoided in irritable rectum, hemorrhoids of active form, menorrhagia and pregnancy, unless given in small doses and with care. The Pil. Aloes et Ferri is perhaps the most generally useful agent in anæmia, amenorrhœa and constipation of girls at the period of puberty.

ALTHÆA, Marsh-mallow,—is the peeled root of *Althæa officinalis*, a European plant of the nat. ord. Malvaceæ, occurring in dry cylindrical pieces, of white color, without pith, of faintly aromatic odor and sweetish mucilaginous taste. It contains about 35 per cent. each of vegetable mucus and starch, with 2 per cent. of *Asparagin*, also pectous matter, sugar, fixed oil, but no tannin. It is a constituent of Massa Hydrargyri and Pilulæ Phosphori, and is much used as an excipient in extemporaneous pharmacy. Dose, indefinite.

Syrupus Althææ,—has of Althæa 4 per cent., and should be freshly made. Dose, indefinite.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

ALTHÆA is one of the best mucilaginous drugs, but has no active medicinal properties. It is used in Europe to make pectoral teas and syrups, and is extensively employed as a mucilaginous demulcent. The powdered root makes a good emollient poultice. In the German Pharmacopœia a Compound Althæa Tea is official, which under the common name, "German Breast Tea," is a popular demulcent drink in bronchial affections, coughs, colds, etc.

ASPARAGIN is an organic principle, occurring in large rhombic crystals, and found in many other plants, as in the shoots of asparagus, vetches, potatoes, liquorice, the sweet almond, the root of the locust, etc. It is considered a derivative of *Succinic Acid*, and has diuretic properties, besides being sedative to the circulation. It may be used in ascites, especially in children, in the anasarca of Bright's disease, and in gout. Dose, gr. ij–iij, in water.

ALUMEN, ALUM, Potassa-alum,—is the Sulphate of Potassium and Aluminium, $K_2Al_2(SO_4)_4.24H_2O$, which, when the 24 molecules of water are driven off, becomes *Alumen Exsiccatum, Dried Alum*, $K_2Al_2(SO_4)_4$. Alum occurs in large, octahedral crystals, or cubes, of sweetish astringent taste and acid reaction. It is soluble in 10½ parts of water at 59° F., and in 0.3 part of boiling water, but is insoluble in alcohol. The Ammonia-alum (Aluminii et Ammonii Sulphas) was formerly official, and is still sold and dispensed as "Alum." Dose, gr. x–xx,—as an emetic ʒj for a child.

Preparation.

Alumen Exsiccatum, Dried Alum,—is a white, granular powder, slowly soluble in 20 parts of water at 59° F., and quickly soluble in 0.7 of boiling water. Dose, gr. x–xx.

PHYSIOLOGICAL ACTION.

Alum is an astringent, coagulating albumen and stimulating muscular contraction. At first it excites the flow of saliva and then markedly diminishes it. It coagulates pepsin and arrests digestion, stops peristalsis, and usually causes constipation, though sometimes inducing diarrhœa. Although coagulating albumen, even in weak solution, it enters the blood, constricts the capillaries, arrests secretions, especially those of mucous surfaces, and stops capillary hemorrhage.

In teaspoonful doses Alum is an efficient and non-depressant emetic. In large doses it is a gastro-intestinal irritant, ℥j⅝ of dried Alum having caused the death of an adult in 8 hours.

THERAPEUTICS.

Alum is used locally as an astringent in chronic catarrhs, leucorrhœa, gonorrhœa, hemorrhoids, bed-sores, ulcers, relaxed throat, colliquative sweats, catarrhal ophthalmia and granular lids. The dried powder is escharotic, destroying granulations and warty growths, and is used by insufflation in chronic nasal catarrh.

Internally it is beneficial in gastric catarrh, gastralgia, enteralgia, passive hemorrhages, lead colic and constipation. As an emetic it is employed in croup, and it is a good antidote in lead-poisoning.

Alum is best administered alone, as it forms precipitates with a large number of drugs.

ALUMINIUM,—This metal is not official, though of its salts two are, besides Alum. They are—

Aluminii Hydras, Hydrate of Aluminium, Hydrated Alumina, Al_2HO_6,—is a white, light, amorphous, tasteless powder, insoluble in water or alcohol, but soluble in strong alkaline or acid solutions. Dose, gr. iij–xx, in powder or mixture.

Aluminii Sulphas, Sulphate of Aluminium, $Al_2(SO_4)_3.18H_2O$,—is a white crystalline powder, soluble in 1.2 of water at 59° F., almost insoluble in alcohol. Used locally.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The HYDRATE is a feebly astringent and desiccant powder, occasionally used in inflammatory skin affections as a local application, and internally in diarrhœa.

The SULPHATE is antiseptic and astringent. It has been used internally in diarrhœas, but is chiefly employed in a 5 per cent. solution locally to ulcers, or in stronger solution (ʒ iij ad ℥ vj) in foul discharges from mucous surfaces. A saturated solution is a mild caustic, and may be used daily as a local application to enlarged tonsils, nasal polypi, ulceration of the os uteri, and various chronic enlargements. The Benzoinated Solution of Alumina is an unofficial preparation used for the same purposes.

AMMONIACUM, Ammoniac,—is a gum-resin, obtained from *Dorema Ammoniacum*, a Persian plant of the nat. ord. Umbelliferæ, occurring in yellowish-brown tears of peculiar odor, and bitter, acrid and nauseous taste. When triturated with water it readily yields a milk-white emulsion, and contains a *Volatile Oil*, which differs from that of Asafœtida in that it is neither sulphuretted nor phosphoretted. It also contains resin, gum, gluten, etc. Dose, gr. x–xxx.

Mistura Ammoniaci,—is an emulsion with water of 4 per cent. strength, the resin being suspended by the contained gum. Dose, ℥ ss–j.

Emplastrum Ammoniaci,—Ammoniac 100 parts, digested with 140 of Dilute Acetic Acid until emulsionized, then strained and evaporated.

Emplastrum Ammoniaci cum Hydrargyro,—Ammoniac 72, Mercury 18 per cent., and contains also Lead-plaster, Sulphur, Olive Oil, and Dilute Acetic Acid.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Ammoniac is a stimulating expectorant and a laxative, and has a mildly irritant action on the skin. Its actions are similar to those of Asafœtida, but much less powerful. It is not much used, but may be employed with benefit in chronic bronchial affections, especially of the aged, the mixture with the Chloride or Carbonate of Ammonium facilitating expectoration and lessening wheezing. It is also recommended in asthma, and in glandular enlargements and indolent swellings the plasters are employed as stimulating alteratives and resolvents.

AMMONIUM, NH_4,—is a hypothetical compound radical, which does not exist in the free state, but which in combination with acids forms salts which closely resemble those of the elements Potassium and Sodium. Many of its salts are official, as well as the aqueous solutions of the gas AMMONIA, NH_3, which is produced during the putrefaction of all organisms and of many organic nitrogenous compounds existing in the air and in the soil in the free state. The chief commercial source of Ammonium salts is the ammoniacal liquor from gas-works and bones.

Preparations of Ammonia.

Aqua Ammoniæ, Water of Ammonia,—is an aqueous solution of Ammonia, containing $\frac{1}{10}$th by weight of the gas. It is a colorless liquid, of pungent odor, acrid taste and strongly alkaline reaction. Sp. gr. 0.959 at 59° F. Dose, ♏v–ʒ ss, well diluted.

Aqua Ammoniæ Fortior, Stronger Water of Ammonia,—contains 28 per cent. by weight of the gas. Sp. gr. 0.900 at 59° F.

Spiritus Ammoniæ,—is a 10 per cent. solution of the gas in alcohol. Sp. gr. about 0.810. Dose, ♏x–ʒ j, diluted.

Spiritus Ammoniæ Aromaticus,—contains Ammonium Carbonate, Aqua Ammoniæ, Oils of Lemon, Lavender, and Pimenta, Alcohol and Water. Used in the Tinct. Guaiaci Ammoniata and the Tinct. Valerianæ Ammoniata. Dose, ʒ ss–ij.

Linimentum Ammoniæ, Ammonia Liniment,—has of Aqua Ammoniæ 30 parts, Cotton-seed Oil 70.

Ammonium Salts and their Preparations.

Liquor Ammonii Acetatis, Solution of the Acetate of Ammonium, Spirit of Mindererus,—is prepared by neutralizing Dilute Acetic Acid with Carbonate of Ammonium, and contains about 7½ per cent. of the Acetate. It should be freshly made. Used in Mistura Ferri et Ammonii Acetatis. Dose, ʒj-℥j.

Ammonii Benzoas, Benzoate of Ammonium, $NH_4C_7H_5O_2$,—in minute four-sided laminar crystals, soluble in 5 of water and 28 of alcohol at 59° F. Dose, gr. v-xv.

Ammonii Bromidum, Bromide of Ammonium, NH_4Br,—in prismatic crystals or as a granular salt, soluble in 1½ of water and 150 of alcohol at 59° F. Dose, gr. x-ʒss, well diluted.

Ammonii Carbonas, Carbonate of Ammonium, $NH_4HCO_3.NH_4NH_2CO_2$,—occurs in white masses consisting of both the bicarbonate and carbonate, which on exposure to air becomes a white powder (acid carbonate). Soluble in 4 parts of water at 59° F. Dose, gr. v-x.

Ammonii Chloridum, Chloride of Ammonium, Sal-ammoniac, HN_4Cl,—a white, crystalline powder, of saline taste, and slightly acid reaction; soluble in 3 of water and very sparingly in alcohol. Dose, gr. j-xx.

Trochisci Ammonii Chloridi, Troches of Chloride of Ammonium,—each contains 2 grains of the chloride.

Ammonii Iodidum, Iodide of Ammonium, NH_4I,—a deliquescent, granular, white salt, soluble in 1 of water and 9 of alcohol at 59° F. Dose, gr. ij-x.

Ammonii Nitras, Nitrate of Ammonium, NH_4NO_3,—in colorless crystals or fused masses, soluble in 0.5 of water and 20 of alcohol at 59° F. Only used to prepare Nitrous Oxide Gas by heating to 365° F., for anæsthesia.

Ammonii Phosphas, Phosphate of Ammonium $(NH_4)_2HPO_4$,—in colorless prisms, soluble in 4 of water, insoluble in alcohol. Dose, gr. v-xx.

Ammonii Sulphas, Sulphate of Ammonium $(NH_4)_2SO_4$,—is only used for the preparation of other ammonium salts.

Ammonii Valerianas, Valerianate of Ammonium, $NH_4C_5H_9O_2$,—in white, quadrangular plates, deliquescent; very soluble in water and alcohol. Dose, gr. j-v.

Raspail's "Eau Sedative" (Unofficial),—consists of Aqua Ammoniæ ℥ij, Sodii Chloridum ℥ij, Spiritus Vini Camphorat. ʒiij, Aqua ℥xxxij. For local use.

Physiological Action.

The gas Ammonia is intensely alkaline and irritant to mucous membranes; inhaled producing spasmodic cough and a sense of suffocation. Its prolonged inhalation will induce violent inflammation of the air-passages and œdema of the glottis. It stimulates the nasal branch of the fifth nerve, exciting the vaso-motor centre by reflex action, and thus raising the arterial tension. Applied to the skin and allowed to evaporate, it has a slight rubefacient effect, but if evaporation be prevented it penetrates the epidermis and has a powerfully vesicant action. The Aqua, swallowed undiluted, may cause death quickly by suffocation from the action of its vapor upon the air-passages; if not, it may excite gastro-enteritis accompanied by coma, differing in the latter respect from potassium or sodium poisoning. After absorption it stimulates both the respiration and the circulation by direct action on their respective nerve-centres. Ammonia exists normally in the circulation, where it keeps the fibrin in solution and thus maintains the fluidity of the blood. It increases the glycogenic function of the liver, and is converted finally into urea. It is a powerful irritant to muscular tissue, causing tetanic contraction and subsequent rigor mortis when directly applied.

Ammonium Salts all stimulate and finally paralyze the spinal cord, motor nerves and muscles, in animals, but the order and readiness of the action vary with the salts employed, some having a predominating influence on the cord, others on the motor nerves. In general they may be said to form a series, of which the members at one end stimulate the cord, and those at the other paralyze both the cord and the motor nerves. At the stimulant end are Ammonia and the Chloride; at the paralyzant end the Iodide; the Bromide, Phosphate and Sulphate lying between (Brunton). In medicinal doses they act on man as stimulating expectorants, in large quantity they injure the structure of the red blood-corpuscles, and if long-continued they produce rapid emaciation by impairing digestion and increasing tissue-waste.

The CHLORIDE has decided cholagogue powers, increases the excretion of urea, in 20-grain doses is purgative, and is considered to have a selective action upon the gastric mucous membrane. The CARBONATE is a powerful and very diffusible stimulant; when administered internally in moderate doses, it is probably decomposed by the HCl of the gastric juice, nascent ammonia being set free and absorbed. It stimulates the respiratory centre, acts as a stimulating expectorant, and in very small doses stimulates the secretion of the gastric juice. It is also emetic, and has been supposed to prevent iodism when administered conjointly with Iodide of Potassium. The SOLUTION OF THE ACETATE is an active diaphoretic if the body be warm, or a diuretic if it be cool. In wineglassful doses it will counteract many of the immediate effects of alcohol. The PHOSPHATE is diuretic, and is believed to decompose the insoluble Urate of Sodium in the blood, converting it into the soluble salts Urate of Ammonium and Phosphate of Sodium, and thus promoting its elimination. The BENZOATE is also diuretic, and like Benzoic Acid passes out of the system in the urine as Hippuric Acid. It acidifies the urine where there is phosphatic tendency of the same. The NITRATE and SULPHATE are only used for the preparation of other salts, while the IODIDE, BROMIDE and VALERIANATE correspond in action to that of their titular bases, and are described under their respective titles, IODUM, BROMUM and VALERIANA.

Antagonists to Ammonia.

When inhaled, give HCl vapors by inhalation to form the chloride; if taken in solution, give *Vegetable Acids*, and demulcents to protect the mucous surfaces. Its physiological antagonists are the cardiac sedatives, Aconite, Digitalis, Veratrum, etc.

THERAPEUTICS.

The strong solution of AMMONIA may be used as a rubefacient and vesicant, and its vapor, by cautious inhalation, in syncope and the results of shock. Locally, it is a good application to bites of the less venomous reptiles and to the stings of insects. The CARBONATE is used internally in the eruptive fevers, delirium tremens, continued fevers, pneumonia, etc., where much depression exists; as a stimulating expectorant in chronic bronchitis, in the broncho-pneumonia of children, and in cardiac asthma. It is highly recommended in scarlet fever in doses of 3 to 5 grains every one, two or three hours, all acid drinks or fruits being prohibited while it is being administered. With ten-minim doses of tincture of capsicum in an ounce of some bitter infusion it is exceedingly efficient, in 5–10-grain doses, for the sinking sensations and craving for stimulants experienced by subjects of alcoholism. It may be used as an emetic in bronchitis, when the tubes are choked with mucus and the circulation of the patient is weak. It may also be employed by inhalation, and administered internally, for similar purposes as Liquor Ammoniæ. The CHLORIDE has a high repute in catarrh of the stomach, with anorexia, bad taste in the mouth, flatulence, coated tongue, etc., in short, the symptoms of so-called "biliousness;" also, in chronic congestion of the liver, jaundice from catarrh of the bile-ducts, nervous and sick headaches, myalgia, amenorrhœa, muscular rheumatism and neuralgia. In the latter affection it should be given in 30-grain doses several times a day. It is also efficient in bronchial catarrh without fever, and in chronic bronchitis when the secretion is scanty and tough. Locally, in solution, it has been well employed in inflammatory swellings, as sprains, inflamed joints, orchitis, etc., as a lotion; also, to allay itching in prurigo, to remove ecchymoses and glandular enlargements. *Eau Sedative* is often a good local application in headaches.

The SOLUTION OF THE ACETATE is especially beneficial in the exanthemata, influenza, coryza, anomalous febrile conditions of children, acidity and vomiting; also, in erysipelas when there is feeble circulation, cyanosis and delirium. It is frequently combined with Spirit of Nitrous Ether, as a diuretic and diaphoretic in febrile affections. The PHOSPHATE is particularly applicable to gout and lithæmia, and is a very efficient cholagogue. The BENZOATE is useful in cystitis with alkaline urine and phosphatic deposits, as it acidulates the urine, at the same time stimulating and disinfecting the mucous coat of the bladder.

AQUA AMMONIÆ has been administered by intra-venous injection, with efficacy and safety, in sudden or threatened thrombosis, cardiac paralysis from Chloroform, and in poisoning by Hydrocyanic Acid and other cardiac depressants. In the same manner, it has been employed, but unsuccessfully, in poisoning by the bite of venomous reptiles. Ten drops of the strong Liquor are diluted with three parts of water, and carefully injected into a vein, all air being rigorously excluded from entrance thereinto.

The therapeutics of the IODIDE, BROMIDE and VALERIANATE are enumerated under the titles IODUM, BROMUM and VALERIANA respectively.

AMYGDALA, Almond,—the seeds of two varieties of *Amygdalus communis* (nat. ord. Rosaceæ), namely *Amygdala amara* and *Amygdala* *dulcis*, are official, together with several preparations, some prepared from one variety, some from another, while one is from either and one from both. An important point is the reaction between *Amygdalin* and *Emulsin* in the presence of water, producing Hydrocyanic Acid (see *ante*, page 67). *Amygdalin*, $C_{20}H_{27}NO_{11}$, is a crystalline glucoside, existing in Amygdala amara but not in Amygdala dulcis; while the ferment *Emulsin* is common to both varieties.

AMYGDALA AMARA, Bitter Almond,—is the seed of *Amygdalus communis*, var. *amara*, a tree of the nat. ord. Rosaceæ, indigenous to Western Asia, but cultivated in many other parts of the world. The seed is lanceolate in shape, brownish in color, about an inch long, having a white, oily embryo of bitter taste, which, when triturated with water, emits an odor of Hydrocyanic Acid. Cultivated chiefly in Spain and the Balearic Islands.

AMYGDALA DULCIS, Sweet Almond,—is the seed of *Amygdalus communis*, var. *dulcis*, a tree of the nat. ord. Rosaceæ. The bitter and sweet almond trees are identical botanically, and the fruits and seeds of the two varieties resemble each other closely, only differing in taste and the presence of Amygdalin (see above). The sweet almond is largely cultivated about Malaga and in California.

Preparations.

Aqua Amygdalæ Amaræ,—is a weak solution of the Oil of Bitter Almond in Distilled Water (1 to 1000). Is only a flavored water. Dose, indefinite.

Oleum Amygdalæ Amaræ,—is a volatile oil, of peculiar and aromatic odor, bitter, burning taste, and neutral reaction; soluble in 300 of water, but freely in alcohol and ether. Dose, ♏ ¼–j, in mixture.

This essential oil, one of the products of the reaction between Amygdalin and Emulsin (see *ante*, p. 67), contains a varying quantity of Hydrocyanic Acid (3 to 14 per cent.), which may be removed by distillation with caustic potash. Nitrobenzol, or "Oil of Mirbane," closely resembles the oil of bitter almond, and like it is used for flavoring. It contains no Hydrocyanic Acid, but is a dangerous poison, producing toxic effects when inhaled, even in small doses.

Syrupus Amygdalæ,—has of Bitter Almond 3 per cent., of Sweet Almond 10. Dose, indefinite.

Mistura Amygdalæ,—made of Sweet Almond 6 per cent., with Acacia, Sugar and Water. A demulcent drink, used as a vehicle for cough mixtures. Dose, ʒij–℥ss.

Oleum Amygdalæ Expressum,—is the fixed oil which is expressed from either Bitter or Sweet Almond. Used in Unguentum Aquæ Rosæ, and as a bland local application in skin affections.

PHYSIOLOGICAL ACTION.

The bitter and sweet varieties of the species *Amygdalus communis* differ in action only through the agency of the principle Amygdalin contained in the former. The Sweet Almond is demulcent and nutritive, while the fixed oil expressed from either variety is a bland application, having the same action as Olive Oil. The action of the Bitter Almond and its oil is due to the Hydrocyanic Acid contained in them (see *ante*, p. 67).

THERAPEUTICS.

EXPRESSED OIL OF ALMOND is demulcent, and in doses of ʒj–ij a mild laxative. It is used externally for excoriations, chapped hands, and inflammatory skin affections, and is applied to the ear in earache. The cake remaining after the expression of the fixed oil from the sweet almond is ground into flour, and used in the form of biscuits for diabetics as a substitute for bread, as it contains no starch.

THE OIL OF BITTER ALMOND is used as a flavoring agent, and may be employed locally or internally in lieu of Hydrocyanic Acid. The Syrup is somewhat sedative, but is generally used as a demulcent or for flavoring purposes. The Mixture is used in catarrhal affections and as a vehicle for cough-mixtures. The poisonous character of the Bitter Almond and its essential oil (Oleum Amygdalæ Amaræ) should be kept in mind.

AMYL NITRIS, Nitrite of Amyl, $C_5H_{11}NO_2$,—is a clear, yellowish liquid, of ethereal and fruity odor, aromatic taste, and neutral or slightly acid reaction, extremely volatile, insoluble in water but freely soluble in alcohol, ether, chloroform and benzin. It is produced by the action of Nitric or Nitrous Acid upon Amylic Alcohol, and when impure may have Nitric or Hydrocyanic Acid in it. Dose internally ♏¼–j dissolved in alcohol,—by inhalation ♏ij–v; but larger doses are probably safe.

Unofficial Analogue.

Nitroglycerinum,—Nitroglycerin, Glonoin, Trinitrin, Trinitrate of Glyceryl, $C_3H_5(NO_2)_3$,—is a clear, oily liquid, insoluble in water, but soluble in alcohol, ether, oils, etc., produced by the action of nitric and sulphuric acids upon glycerin. Is a dangerous explosive, and should not be kept in stronger solution than 1 per cent. Dose ♏$\frac{1}{200}$ to $\frac{1}{50}$ or more, according to susceptibility.

Unofficial Preparations of Nitroglycerin.

Tinctura Nitroglycerini,—a one per cent. solution in alcohol. Dose, ♏½–x. The strong tincture sold by the homœopathic pharmaceutists and official in their American Pharmacopœia is a ten per cent. solution, or ten times the strength of the above. It is an extremely dangerous preparation, both as an explosive and as a medicine. (See *American Homœopathic Pharmacopœia*, 2d ed., Boericke & Tafel, 1883, page 235.

Tabellæ Nitroglycerini, B. P.,—Tabellæ Trinitrini,—are tablets of chocolate, each containing gr. $\frac{1}{100}$ of pure Nitroglycerin. Dose, j–ij.

Other Nitrites.

Sodii Nitris, Nitrite of Sodium, and *Potassii Nitris*, Nitrite of Potassium (both unofficial), are used as substitutes for Amyl Nitrite and Nitroglycerin. The former is a white, granular powder, deliquescent, with a cool, saline taste, very soluble in water, is made by heating Sodium Nitrate, and has the formula $NaNO_2$. Dose, gr. ½–v, according to individual susceptibility.

Ethyl Nitrite, $C_2H_5NO_2$,—constitutes 5 per cent. of Spiritus Ætheris Nitrosi. (See *ante*, page 79.)

PHYSIOLOGICAL ACTION.

NITRITE OF AMYL and the other NITRITES agree closely in their general action, producing great vascular dilatation by paralyzing either the sympathetic system, the vaso-motor centre or the muscular coat of the arterioles,—which, is yet undecided. They cause tumultuous action of the heart by relaxing its inhibition;—lowered respiration, from paralysis of the respiratory muscles and impairment of the ozonizing function of the blood;

—diminution of sensation, motility and reflexes;—a sense of heat, but lowered body-temperature; also throbbing pain in the head, beating carotids, quickened pulse, flushed face and vertigo.

The effect of an ordinary inhalation of Amyl Nitrite on man is very transitory, excepting the headache, which may last several hours. Of the nitrites it is the most prompt but least enduring in action, and is best administered by inhalation. It causes sugar to appear in the urine and increases the quantity voided. Mixed with blood it forms methæmoglobin, which is not so readily deoxidized as hæmoglobin, and under its influence the blood in the body becomes of a dark chocolate color both in the arteries and in the veins.

NITROGLYCERIN acts similarly, but less promptly, and its action is more enduring. Its headache is of intensely frontal character, and persists for hours after the other effects have passed off. It is more suitable for internal administration.

NITRITE OF SODIUM is also slower in action than Amyl Nitrite, and does not cause so much throbbing headache as Nitroglycerin. It may be given in solution with water.

The action of all these agents is probably due to the Nitrous Acid contained in them.

Antagonists.

Ergot, Belladonna, Strychnine, Brucine, Digitalis, Picrotoxin, and all other agents which increase the functional activity of the spinal cord and sympathetic are antagonistic, though by reason of their slower rate of diffusion the antagonism may not be always available. Stimulants, artificial respiration, the alternate cold and hot douche, with cold to the head, and Ergotin or Atropine subcutaneously, are the best means to be used in cases of poisoning by the Nitrites.

THERAPEUTICS.

The inhalation of AMYL NITRITE is a useful palliative in angina pectoris, epilepsy, tetanus, and many of the respiratory neuroses, as spasmodic asthma, whooping-cough, laryngismus stridulus, etc. It is also indicated in migraine of the pale-face form, and in the cold stage of intermittents and pernicious remittents, to prevent internal congestion,—also in convulsions of various kinds, including the puerperal. It has been sometimes used in threatened death from chloroform anæsthesia, and in poisoning by strychnine.

NITROGLYCERIN has been used with benefit in neuralgic dysmenorrhœa, sea-sickness, and in chronic interstitial nephritis by redistributing to the kidneys their blood-supply cut off by degeneration of the renal ganglionic centres. It promptly relieves hiccough, migraine of spasmodic character, and has afforded immediate relief in neuralgia of the fifth. Its administration in angina pectoris, though not producing such prompt results as that of Amyl Nitrite, gives excellent and much more lasting effects. It is useful in the weak heart of the aged, or that from fatty degeneration, or when, as in Bright's disease, the arterial tension is above normal; also in irritable and overacting heart, which it relieves by lowering arterial tension.

Nitrite of Sodium has been successfully employed in angina pectoris, hemicrania, and in asthma of purely bronchial and neurotic origin. It has also proved decidedly beneficial in the abnormally high arterial tension of chronic desquamative nephritis, especially when complicated with a weakened and dilated heart.

AMYLUM, Starch, $C_6H_{10}O_5$,—is the fecula of the seed of *Triticum vulgare*, common wheat, a plant of the nat. ord. Graminaceæ. Though wheat-starch is the official kind, any other might be properly used, as the starch occurring in barley, oats, arrow-root, sago and tapioca, all of which foods were official in the U. S. P. of 1870. The last three are entirely composed of starch; wheat contains about 70 per cent., and rice 90 per cent.

Starch is a carbo-hydrate, and occurs in distinct grains, forming irregular, angular masses, white, inodorous and tasteless, easily pulverized, of neutral reaction, and insoluble in alcohol, ether or cold water. Under the microscope the granules are seen to be lenticular in form and concentrically striated. When boiled with water it yields a whitish jelly of bluish tinge, which when cool gives a deep blue color with test-solution of iodine, the color disappearing on warming and returning on cooling.

By boiling with dilute mineral acids starch is converted into glucose, dextrin being formed as an intermediate product. Hot concentrated nitric acid converts it into oxalic acid, but cold fuming nitric acid dissolves it, forming an explosive compound. Diastase, ptyalin and pancreatin convert it into glucose. [For Glycogen, Dextrin, Cellulose and other allied substances see the article Saccharum in the following pages.]

Amylum Iodatum, Iodized Starch,—has of Starch 95 parts, Iodine 5, triturated with distilled water and dried. Used as a method of giving Iodine (*see* Iodum). Dose, ʒj–℥ss.

Glyceritum Amyli, Glycerite of Starch,—has of Starch 10 parts, Glycerin 90, triturated and heated to a transparent jelly. Used as a vehicle for external applications.

Physiological Action and Therapeutics.

Starch, though a nutritive of the first order, may be regarded as inert medicinally. It serves as a protective and absorbent if dusted over the skin, as a vehicle for enemata, and as an antidote in iodine-poisoning. Mixed with glue it makes an excellent stiff bandage for surgical purposes.

ANISUM, Anise,—is the fruit of *Pimpinella Anisum*, a European plant of the nat. ord. Umbelliferæ. It occurs in ovate bodies, ⅙ inch long, hairy, of grayish color, aromatic odor, and sweet, spicy taste, resembling conium fruit in appearance. Dose, gr. x–xx.

Preparations.

Oleum Anisi,—is a volatile oil distilled from *Anise* or from *Illicium anisatum* (the star-anise), and represents the medicinal qualities of the plant. That from Anise congeals at 50° to 59° F., and is soluble in an equal part of alcohol. That from Illicium congeals at about 35½° F. The oil is an ingredient of Tinctura Opii Camphorata, Trochisci Glycyrrhizæ et Opii, and of the two following preparations. Dose, ♏j–v.

Aqua Anisi,—has in 500 parts 1 of Oil of Anise mixed with distilled water by the aid of cotton. Dose, indefinite.

Spiritus Anisi,—is a 10 per cent. solution of the oil in alcohol. Dose, ʒj–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The Volatile Oil is the active constituent of Anise. It has a slightly stimulant action on the heart and the digestive organs, and liquefies the bronchial secretion, being probably in part excreted by the bronchial mucous membrane. It is a favorite flavoring ingredient of cough-mixtures, and relieves slight intestinal colic and flatulence in children. In full doses it has a weak narcotic power.

ANTHEMIS, Chamomile,—the flower-heads of *Anthemis nobilis*, a European perennial of the nat. ord. Compositæ, collected from cultivated plants. Chamomile-flowers are sub-globular, about ¾ inch broad, having numerous white, three-toothed florets on a conical, solid receptacle, a strong but agreeable odor, and an aromatic, bitter taste; and contain a volatile oil, a camphor and a bitter principle but no alkaloid. There are no official preparations. An infusion (℥iv to Oj) may be given in doses of ℥j–ij.

Oleum Anthemidis, Chamomile Oil (Unofficial),—the volatile oil is of a dark blue or green color, and is composed of various ethers, the Angelates and Valerianates of Butyl predominating. Dose, ♏ij–x, on sugar.

PHYSIOLOGICAL ACTION.

Chamomile is a stomachic tonic. It improves the appetite and aids digestion by increasing the vascularity of the gastric mucous membrane. In large doses the warm infusion is emetic, and perhaps diaphoretic, though the latter action is chiefly due to the hot water. The oil is remarkably efficient in reducing reflex excitability in frogs, even after its excitation by Strychnine or Brucine.

THERAPEUTICS.

Chamomile is popular in domestic practice. An infusion is used by nurses for many infantile complaints, and externally as a fomentation to relieve pain, as in colic, etc. The oil is very efficient in reflex cough, pulmonary catarrh, acute dyspepsia, diarrhœa of children, spasmodic asthma, whooping-cough, colic, and the spasmodic and pseudo-neuralgic affections of hysterical women. It should prove extremely useful in poisoning by Strychnine, from its power over reflex excitability.

The Chamomile of the homœopaths is the *Matricaria Chamomilla*, or German Chamomile, official in the U. S. Pharmacopœia as "MATRICARIA," which see.

ANTIMONIUM, Antimony, Sb.—Metallic Antimony is not official, nor is it used in medicine. It is represented, however, by the following official salts and preparations, viz.:

Compounds of Antimony and their Preparations.

Antimonii et Potassii Tartras, Tartrate of Antimony and Potassium, Tartar Emetic, $2KSbOC_4H_4O_6.H_2O$,—small white crystals or a granular powder, of sweet, disagreeable metallic taste, soluble in 17 of water at 59° F., and in 3 of boiling water, insoluble in alcohol. Dose, gr. $\frac{1}{16}$–$\frac{1}{4}$, but after tolerance is established as high as gr. ij may be given. Is an ingredient of the two following, viz.:

Vinum Antimonii, Wine of Antimony,—has of Tartar Emetic 4, Boiling Distilled Water 60, Stronger White Wine to 1000 parts. Contains about 2 grains of Tartar Emetic to the ℥, and is an ingredient of Mistura Glycyrrhizæ Composita. Dose, as a febrifuge and expectorant, ♏v–xv.

Syrupus Scillæ Compositus, Cox's Hive Mixture, Hive Syrup (see under *Scilla*),—contains about ¾ grain of Tartar Emetic to the ℥, or more accurately 3 parts in 2000, with Squill, Senega, etc. Dose, ♏ v-ʒj, cautiously in children.

Antimonii Oxidum, Oxide of Antimony, Sb_2O_3,—a heavy, gray powder, insoluble in water or alcohol, but readily and wholly soluble in Hydrochloric or Tartaric Acids. Dose, gr. j–iij. It constitutes ⅓d of—

Pulvis Antimonialis,—Antimonial or James' Powder,—consists of the Oxide of Antimony 33 parts, with 67 of Calcium Phosphate. Dose, gr. iij–viij, every 3 hours as a diaphoretic, larger doses for emetic and cathartic effects.

Antimonii Sulphidum, Sulphide of Antimony, Sb_2S_3,—is the native sulphide, purified by fusion, and as nearly free from Arsenic as possible,—steel gray masses, or a black, lustreless powder, insoluble in water or alcohol. Dose. gr. ¼–j.

Antimonii Sulphidum Purificatum, Sb_2S_3,—is purified by maceration in Aq. Ammoniæ, washing and drying. Dose, gr. ¼–j.

Antimonium Sulphuratum, Sulphurated Antimony,—is chiefly Sb_2S_3, with a very small amount of Sb_2O_3. A reddish-brown, odorless and tasteless powder, insoluble in water or alcohol. Is a constituent of Pil. Antimonii Compositæ. Dose, gr. j–v.

Pilulæ Antimonii Compositæ, Plummer's Pills,—each pill contains gr. ½ each of Calomel and Sulphurated Antimony.

Physiological Action.

Tartar Emetic in its action represents the other official antimonial preparations, being a cardiac, arterial and general depressant, a protoplasmic poison, a systemic and local emetic, a specific gastro-intestinal irritant, an expectorant and a diaphoretic. Like Aconite, Arsenic, Hydrocyanic Acid and Potassium, it is destructive to protoplasm, destroying function in all nitrogenous tissue, and paralyzing the spinal cord, the motor nerves, the muscles and the sensory nerve terminations. It is especially depressant to the heart-muscle and the cardiac motor ganglia; it combines with the red blood-corpuscles, lessening their oxidizing power, lowering the blood-pressure and reducing the body-temperature. Its taste is styptic and one of its earliest effects is the production of constriction of the fauces. It promotes waste and rapid excretion of waste-products, carbonic acid and urea being especially increased. Being eliminated by all the excretory organs, including the skin, it excites follicular inflammation at the points of elimination; resulting in an eruption which is papular at first, then becomes vesicular, and finally pustular, the pustules being umbilicated, like those of variola. This same eruption is also produced by the application of the drug to the skin with friction. Aphthous ulcerations, extending from the mouth to the stomach, with salivation and painful deglutition, may also result from its continued use.

In small doses Tartar Emetic stimulates secretion in the bronchial and salivary glands, the stomach, intestinal canal, liver and pancreas. In larger doses it excites nausea, vomiting and purging, with evacuations like the "rice-water discharges" of cholera, and great prostration of the vital powers. Toxic doses produce similar symptoms, besides epigastric pain, cyanosis, delirium, cramps, motor and sensory paralysis, suppression of urine and collapse,—much the same phenomena as observed in Asiatic cholera.

The SULPHIDE occurs native, and is the source from which the other compounds are prepared. It seems to be inert medicinally. SULPHURATED ANTIMONY owes its efficacy to the small quantity of the Oxide contained in it, and as this is variable, the action of the preparation is uncertain. The OXIDE has a similar action to that of Tartar Emetic, but being insoluble in water, it is of much less certain activity.

Antidotes and Antagonists.

Tannic Acid, or any substance containing it, is the antidote, forming the insoluble tannate. Opium, Alcohol, Ether, and other antispasmodics are physiological antagonists. Demulcent drinks should be freely administered to protect the mucous membranes. Alkalies and Salts of Lead decompose Tartar Emetic.

THERAPEUTICS.

TARTAR EMETIC was formerly much employed as an antiphlogistic on account of its power to cut short acute inflammations of sthenic type, and its use was very much abused, so that it has now gone out of fashion as a remedy. The contra-stimulant treatment of pneumonia and other inflammatory diseases by large doses of this salt after tolerance was established, is only worthy of reference as an historical fact. The same may be said of its external use as a counter-irritant as well as of its employment as an emetic, in both of which capacities it is too severe, while its emesis is too tardy in action to be of any value in poisoning. It is, however, a very efficient agent in many grave affections, if used in small doses (gr. $\frac{1}{60}$–$\frac{1}{40}$); being highly recommended in acute inflammatory affections of the respiratory tract, especially pneumonia, broncho-pneumonia, acute œdema of the lungs, feverish and catarrhal colds, bronchitis, laryngitis and tonsillitis. In many respects it acts like Aconite in these and kindred affections, producing copious diaphoresis, slowing the pulse and allaying restlessness. It is considered a good remedy in puerperal peritonitis, mammitis and orchitis, in lumbago and other muscular rheumatisms, also in photophobia and in gastric indigestion after beer-drinking. In still smaller doses (gr. $\frac{1}{100}$ hourly) it is particularly efficient in catarrhal inflammations of the respiratory mucous membrane in children, accompanied by rattling breathing and much mucus, which is expelled with difficulty. Such cases often simulate asthma, the attacks being marked by cough, wheezing, and difficult respiration, also sibilant râles in the chest, and usually follow on severe colds or on measles. The Compound Syrup of Squill is commonly used as an expectorant and nauseant in the treatment of bronchitis and croup. The quantity of Tartar Emetic in it (gr. ¾ to the ℥) should be remembered in administering it to children. (See SCILLA.)

The OXIDE is chiefly employed in the form of James' Powder (Pulvis Antimonialis) for its mild diaphoretic qualities. The SULPHIDE is not used in medicine. SULPHURATED ANTIMONY is very uncertain in action and is but little used. The Compound Pill of Antimony (Plummer's Pill) was devised to obtain mercurial results without writing Hydrargyrum on a prescription.

ANTIPYRINA, Antipyrine, Dimethyl-oxy-chinicine, $C_{20}H_{18}N_4O_2$ (Unofficial),—is an alkaloidal product of the destructive distillation of Coal-tar (compare CHINOLINA), and prepared by a patented and complicated process. It may also be obtained synthetically by heating Methyl-oxy-chinicine with Phenyl-hydracine, and collecting the powder. It is a grayish or reddish-white crystalline powder, which combines with acids to form salts, is somewhat bitter, and soluble in one-half its weight of hot water, and in its own weight of cold water; but is still more so if the water is acidulated with dilute nitro-hydrochloric acid. It is less soluble in alcohol, chloroform or ether, gives an intensely *red* color with Ferric Chloride, and a beautiful *green* with Nitric Acid. It is not irritant to either the stomach or the tissues, and may be administered hypodermically.

The full dose for an adult is put at gr. xxx hourly for three hours, or gr. xc for the antipyretic effect. For children, gr. j for each year of age as a dose, to be repeated twice, or for three successive hourly doses. If vomiting result, the same dose may be dissolved in half its weight of *hot* water, and injected hypodermically while warm.

Antipyrine has but little flavor, is not unpleasant, and is therefore readily taken by children, in which respect it is greatly superior to quinine. It may be administered in compressed tablets, each having 3, 5 or 10 grains;—or in Elixir Aurantii,—say gr. lxxx in ℥ iv, of which each ʒ contains gr. ijss.

Antipyrine is decomposed when brought into contact with nitrous compounds, a new and poisonous substance being formed, of uncertain composition, but resembling the anilin greens. The mixture of this drug with Spiritus Ætheris Nitrosi is, therefore, highly dangerous.

PHYSIOLOGICAL ACTION.

Antipyrine is a powerful antipyretic, a local anæsthetic, and a general analgesic,—and also possesses diaphoretic, mydriatic, antiseptic, disinfectant, hemostatic and slightly hypnotic powers. After the ingestion of a full medicinal dose, (gr. xxx), there is a stimulant stage of short duration, in which the heart's action is increased, and a subjective sense of heat is experienced, with flushing of the face. This is soon followed by profuse sweating, coldness of the surface, slowed pulse, considerable depression, and if fever be present by *lowered temperature;* the latter coming on within half an hour after taking the drug and its degree being in direct ratio to the quantity administered, as also its continuance,—the former being usually from 3 to 5 degrees, and the latter from 1 to 10 hours, a fair average being about 2 hours. In one case a fall of 12° F. was observed.

When given with Kairine, the mixture of the two drugs has been found to produce a much greater fall of temperature, with longer continuance down, than that produced by an equal quantity of either drug given alone.

After the antipyretic effect of the dose has passed off, the temperature (in fever) commences to rise again,—the onset being usually preceded by a chill, which is of slight degree when compared with the severe rigors and dangerous depression occurring under the action of Kairine, Chinoline, and other members of the group.

In health its administration gives rise to slight nausea, singing in the ears, and a reduction of the body temperature of scarcely any extent, about $\frac{1}{10}$° F. It slightly raises the arterial tension and blood-pressure;—sometimes (but seldom) induces vomiting, also a peculiar eruption on the skin;—and (very rarely) such a degree of depression as to amount to collapse. It has no effect upon the respiration, but acts as a sedative upon the cerebrum, leaving behind a somewhat depressant influence on the brain. It dilates the pupils and is eliminated by the kidneys, appearing in the urine some three hours after its ingestion. The profuse sweating which it causes may be prevented by giving in advance a small dose of Atropine or Agaricine.

In toxic dose its principal influence is exerted upon the blood, altering the shape of the red corpuscles, separating the hematin, and causing decomposition of that fluid.

As an Antipyretic, Antipyrine, like Alcohol, acts by a double mode of operation,—(1), by diminishing oxidation, and (2) by promoting heat-loss. The latter is attained by dilating the cutaneous vessels, allowing free radiation from the surface, and by the refrigerant action of the evaporation of the sweat.

As an Analgesic, Antipyrine has a very considerable degree of power, in common with all the Chinoline derivatives; but its property in this respect is found to act almost entirely upon pain due to manifestations of the rheumatic diathesis. In general anodyne action, it is not to be compared with the derivatives of Opium. Its hemostatic power is claimed to be superior to that of Ergotine.

THERAPEUTICS.

By far the most popular of the modern antipyretics, Antipyrine deserves its rank in professional esteem, being the most certain, the most powerful and the least dangerous;—but devoid of any other influence upon the course of any febrile disorder. Its principal applications are as follows, viz.—

In hyperpyrexia from any cause, it is efficient. In acute rheumatism, it has held the first place as a remedy, for some time; a claim which is now disputed in favor of Salol. In typhoid fever and other febrile conditions, wherein hyperpyrexia occurs, as phthisis, erysipelas, pleuritis, pneumonia, surgical fever, etc. In neuralgiæ, neuritis, and other painful affections, especially when of rheumatic origin,—as lumbago, sciatica, hemicrania, supra-orbital neuralgia, etc., in which 15-grain doses are generally sufficient, and may be given hypodermically. In painful affections of hysterical persons;—pain from cerebral tumors and from cardiac diseases,—also painful menstruation;—all of which are promptly relieved by it. In acute gout, doses of ten grains every two hours, preceded by a 25-grain dose, have promptly relieved the pain and shortened the duration of the attack. In chronic gout, very remarkable results are reported from the use of this agent, indicating a curative action therefor.

It has seemed to render efficient service in dysmenorrhœa, carbuncle, and cerebro-spinal meningitis.

APIOL (Unofficial),—is a non-volatile, oily liquid, of acid reaction and pungent taste, soluble in alcohol, ether, chloroform, and in glacial acetic acid. It is extracted from the fruit of *Petroselinum sativum* (Parsley), a biennial plant of the nat. ord. Umbelliferæ, which also contains a gelatinous substance named *Apiin*, and a *Volatile Oil* which is by some considered to be the true emmenagogue principle of the plant. *Apiol* is probably a mixture of several substances, and as found in commerce is often an impure oleoresin. Dose, ♏iij–x in capsule two or three times a day; as an emmenagogue, ♏xv in one daily dose.

Physiological Action and Therapeutics.

In small doses (♏iij–v) Apiol is carminative, diuretic, diaphoretic, expectorant, and stimulant to the circulation. In full doses (♏xv) it is decidedly emmenagogue and feebly antiperiodic, producing headache, tinnitus aurium, intoxication, giddiness, etc., its action generally resembling that of Quinine. Large doses (♏xxx–ʒj) are decidedly narcotic.

It has had some reputation in intermittents and in malarial neuralgiæ, but is most frequently employed in amenorrhœa and dysmenorrhœa, being of especial advantage in the amenorrhœa of anæmia, also when the menstrual discharge is fetid. It is becoming fashionable as a supposed abortifacient, but is useless for this purpose, and if freely used may produce decided narcotism, especially if the preparation employed should happen to be an active one. The capsules of Apiol put up in France and sold in this country over the counters of drug-stores to any applicant are generally inert; hence cases of poisoning by this drug are seldom observed. They are, however, an important source of revenue to the retailers, as, being "imported" preparations, they command a high price, which is readily paid by gullible women who wish to "bring around their courses."

APOCYNUM, Canadian Hemp,—is the root of *Apocynum cannabinum*, an indigenous perennial plant of the nat. ord. Apocynaceæ, and inodorous but of bitter, disagreeable taste. It contains a peculiar active principle, *Apocynin*, also tannic and gallic acids, resin, wax, caoutchouc, etc. Dose of the powdered root, gr. v–xxx. A decoction (℥ss to the pint) may be given in doses of ℥j–ij thrice daily.

Physiological Action and Therapeutics.

Apocynum is powerfully emetic and cathartic in full doses, also diaphoretic, expectorant and sometimes actively diuretic. It lowers the pulse-rate, produces much nausea, and induces drowsiness. It should not be confounded with Indian or American Hemp (Cannabis sativa), which have entirely different qualities.

The only condition in which Apocynum has proven of much value is dropsy, especially the anasarca of Bright's disease and ascites, in which 15-grain doses are indicated. The active principle, *Apocynin*, is a good expectorant, in doses of gr. ¼ to gr. ½.

APOMORPHINÆ HYDROCHLORAS, $C_{17}H_{17}NO_2HCl$,—is the Hydrochlorate of an artificial alkaloid, Apomorphine, prepared from Morphine or Codeine by the action of strong acids or zinc chloride. It occurs in minute, colorless crystals, odorless, of bitter taste, and neutral or faintly acid reaction; soluble in 7 of water and 50 of alcohol at 59° F., almost insoluble in ether or chloroform; decomposed by boiling water or boiling alcohol.

Dose, gr. $\frac{1}{15}$ to $\frac{1}{10}$ hypodermically, gr. $\frac{1}{10}$ to $\frac{1}{6}$ by the mouth. For young children, gr. $\frac{1}{25}$ to $\frac{1}{12}$ should not be exceeded. Solutions should be fresh when used, and as they alter rapidly by keeping, should have a few drops of hydrochloric acid added to them, to prevent decomposition.

Physiological Action.

Apomorphine is a systemic emetic, acting directly on the vomiting centre, and is the quickest, most certain and least irritating of all emetics, acting in from five to twenty minutes with but moderate nausea. In large dose it is very depressant to the heart (gr. $\frac{1}{15}$ having caused death in a weak adult by cardiac failure), and produces paralysis of the motor and sensory nerves, delirium, convulsions, and depression of respiratory power. Small doses (gr. $\frac{1}{80}$) are expectorant.

THERAPEUTICS.

The Hydrochlorate is usually employed, and is the only official preparation. It is the best emetic to use in many cases of poisoning, particularly when swallowing is difficult, but is useless in narcotic poisoning after narcosis has blunted the vagus centre. It is a very desirable agent in any case where time is of great importance.

As an expectorant it is highly recommended but has not yet been much used. In catarrhs the $\frac{1}{80}$ of a grain every 3 hours will prove of great advantage, but it must be used with caution especially in young children who bear this remedy very badly.

In hacking coughs without expectoration it has proven a very efficient agent, given in minute doses, gr. $\frac{1}{16}$ to $\frac{1}{20}$ in the 24 hours.

AQUA, Water, H_2O,—is natural water in its purest attainable state, a colorless, limpid liquid, devoid of odor or taste, of neutral reaction, and containing not more than 1 part of fixed impurities in 10,000 parts. Besides entering into the composition of most of the official extracts, fluid extracts, and many other pharmaceutical preparations, from it are prepared the 13 official Waters (Aquæ), and also the official—

Aqua Destillata, Distilled Water, H_2O,—1000 parts of water are distilled, the first 50 parts obtained being thrown away, 800 parts are preserved. It is as near chemically pure water as can be obtained.

Aqua Carbonata, Carbonated Water, Soda-water, is water highly charged with carbonic acid gas, CO_2, the excess of gas being dissolved in the water by pressure, and escaping in bubbles when the pressure is taken off. It was official in the U. S. P., 1870, under the title Aqua Acidi Carbonici, the formula requiring that the water be charged with five times its volume of gas, for which a pressure of five atmospheres is required. The materials usually employed by soda-water manufacturers for producing the gas, are either Sodium Bicarbonate or Marble-dust, and Sulphuric Acid.

Nomenclature of Water.

AQUA FLUVIALIS, River-water.
AQUA PLUVIALIS, Rain-water.
AQUA FONTANA, Spring or Well-water.
AQUA MARINA, Sea-water.
AQUA CARBONATA, Carbonated Water, Soda Water.
AQUA DESTILLATA, Distilled Water.
AQUA BULLIENS, Boiling water.
AQUA FERVENS, Hot Water.
AQUA COMMUNIS, Common Water.
BALNEUM MARIS, Warm-Water Bath.
BALNEUM VAPORIS, Vapor Bath.

MINERAL WATERS.

Natural Water differs from Distilled in containing saline and other constituents in varying proportions,—from common water (Aq. Communis), in which they are so small in quantity as not to alter the taste, color, etc., up to the Sea-water, having 3⅓ per cent., and that of the Dead Sea with 26½ per cent. Spring waters, impregnated with foreign substances so as to have a decided taste and a marked action on the human system, are called *Mineral Waters*, which may be subdivided into various groups, according to their prevailing constituents, as *Carbonated*, *Alkaline*, *Saline*, *Sulphuretted*, *Silicious*, etc. Full analyses of all the principal mineral waters of Europe and America are given in the *United States Dispensatory*, 16th edition, but a few of the most prominent will be mentioned here.

Carbonated Mineral Waters.

Selters, Nassau, Germany, ...	30 cubic inches	of CO_2 to the pint.
Apollinaris, Nuenahr, Prussia, ...	47 "	
Old Sweet Spring, West Virginia, ...	11 "	
Sweet Chalybeate Spring, Virginia, ...	13 "	

These waters are cold, contain generally Carbonates of Calcium, Magnesium and Sodium (in some, Iron), which are held in solution by the excess of Carbonic Acid, also Chlorides of Sodium and Potassium, Sulphates, Phosphates, etc.

Alkaline Mineral Waters.

Ems, Germany.
Salzbrunn, Germany.
Gleickenberg, Austria.
Vichy, France.
Vals, France.
Bladon Spring, Ala.
Congress Spring, Cal.
Seltzer Spring, Cal.
Perry Spring, Ills.
St. Louis Spring, Mich.
Buffalo Lithia Spring, Va.
Hot Spring, Va.
Warm Spring, Va.
Berkeley Spring, Va.
Bethesda Spring, Wis.
Gettysburg Spring, Pa.

These waters are generally cold, those of Vichy and Ems being warm. They contain a considerable amount of Sodium Carbonate, also Sodium Chloride and Sulphate, and various other Chlorides, Carbonates and Sulphates, with Carbonic Acid gas in varying quantity. Vichy and Vals waters depend for their efficacy almost wholly on the quantity of Sodium Carbonate contained in them, which is for Vichy from 26 to 50 grains and for Vals about 60 grains to the pint.

Saline Mineral Waters.

Friedrichshall, Germany.
Hunyadi Janos, Hungary.
Baden-Baden, Germany.
Wiesbaden, Germany.
Carlsbad, Bohemia.
Pullna, Bohemia.
Seidlitz, Bohemia.
Marienbad, Bohemia.
Cheltenham, England.
Kissengen, Bavaria.
Reichenhall, Bavaria.
Adelheidsquelle, Bavaria.
Kreutznach, Prussia.
Saratoga Springs, N. Y.
Ballston, N. Y.
Hot Springs, Arkansas.
St. Catherine's, Ontario, Canada.

These waters are of more complex composition, the various waters of Saratoga containing more than thirty constituent salts. Those usually present are the Sulphates and Carbonates of Sodium, Calcium, Magnesium, etc., (*Magnesian waters*); Chlorides of Sodium, Potassium and Lithium (*Chlorinated waters*); Ferrous salts (*Chalybeate waters*), with Iodine, Bromine, Manganese salts, and Phosphates in some few. Carbonic Acid gas is present in all. Most of them are purgative, some are considered alterative, and many are warm (100°–160°).

The most powerful member of the saline group is *Hunyadi Janos*, which contains about 150 grains each of Magnesium and Sodium Sulphates to the pint, and is, therefore, effectively purgative. Nearly as strong is *Püllna* water, with 124 grains of Sodium Sulphate and 93 grains of Magnesium Sulphate to the pint. *Friedrichshall* is less powerful, but perhaps a better aperient water in doses of 6 to 10 fluid ounces. *Marienbad* contains no Magnesium Sulphate, but has 36 grains of Sodium Sulphate, 9 of Sodium Carbonate, 11 of Sodium Chloride, and a small quantity of Ferrous Carbonate to the pint; in transportation, however, it loses its Carbonic Acid and deposits the Iron. It is not aperient in ordinary doses. *Carlsbad* water contains 20 grains of Sodium Sulphate and 9 each of Sodium Carbonate and Chloride to the pint. The so-called "Carlsbad Salt" is simply Sodium Sulphate with a trace of the Carbonate. Hartnack gives the following formula for its artifical preparation: Sodium Sulphate 100 parts, Sodium Bicarb, 80, Sodium Chloride 40; a dessertspoonful in water as a mild saline purgative. These waters are imported into the United States in large quantities, and may be ordered through any druggist.

Sulphurous Mineral Waters.

Aix-la-Chapelle, Prussia.
Baréges, S. France.
Eux-Bonnes, S. France.
Llandrindod, Wales.
Harrowgate, England.
Blue Lick Spring, Ky.
Sharon Spring, N. Y.
Yellow Sulphur Spring, Va.
White Sulphur Spring, W. Va.
Salt Lake Warm Springs, Utah.

These waters all contain Sulphuretted Hydrogen gas, also Carbonic Acid gas and Carbonates, Chlorides and Sulphates of Sodium, Potassium, Magnesium and Calcium; sometimes Carbonate and Oxide of Iron, Iodide and Bromide of Sodium.

Silicious Mineral Waters.

Hot Springs, Iceland.
Geysers of Yellowstone Park.

The constituents of these waters are chiefly alkaline Silicates.

Physiological Action of Water.

Water is an essential constituent of all the tissues of the body, forming from 0.2 per cent. of the enamel of the teeth to 77 per cent. of the ligaments. In the liquids of the organism it is contained in the proportions of 78 per cent. of the blood to 93 per cent. of the urine, and 99 per cent. of the tears. In moderate quantity it is necessary to digestion, but in large amount it weakens digestion by diluting the gastric juice. Ice-cold water, if freely used, suspends the action of the pepsin, depresses the nerves of the stomach, and lowers its blood supply. The free use of water internally produces increased cutaneous and renal excretion, and promotes the elimination of some of the products of tissue-change, as urea, phosphoric acid, etc. In some subjects it favors the deposition of fat.

Cold Water applied externally, as by a bath (40°–60° F.), abstracts a portion of the body-heat, lowering the surface temperature and depressing the cutaneous nerves, producing spasmodic breathing and a quickened pulse. If the temperature of the water is not too low and the bodily vigor is good, reaction soon occurrs, and the general effect is tonic to the muscular power, circulation and respiration. If this does not take place a secondary chill occurs, and serious depression may result.

Warm Water (95°–100° F.) applied to the surface of the body, as by baths of water or steam, packing, etc., acts in the opposite manner at first, increasing the circulation in the skin, the rapidity of the pulse and respiration, and the body temperature. Rapid tissue-change occurs, the waste products being eliminated chiefly by the skin and the pulmonary mucous membrane. If long-continued, precordial oppression, giddiness and muscular debility are experienced.

Hot Water (110°–112° F.) at first dilates the vessels of the part to which it is applied, and soon afterwards contracts them. It is a valuable means of relieving congestion and inflammation, and is a most effective hemostatic when the bleeding is from small vessels or of capillary character. Whether generally or locally applied it is one of the most reliable means of relieving spasm.

Hot Vapor applied to the surface accelerates the circulation and produces profuse sweating. Its general action is similar to that of warm water.

Mineral Waters taken internally act chiefly by virtue of the water, partly in accordance with the effects of their various constituents. As baths their action is doubtless entirely due to their temperature.

Therapeutics of Water.

Cold Water or Ice has many external applications of value in the treatment of disease. As a wet pack it is used in tonsillitis, diphtheria and croup. Cold baths are the most effective antipyretic in the high temperature of fevers, and the cold wet pack is used for the same purpose. Ice or cold water is applied to the head in acute cerebral congestion, and to the spine in chorea, etc.; also locally in hemorrhoids, bubo, orchitis, and to the uterus in post-partum hemorrhage. Cold affusion to the body is employed as a preventive of spasmodic croup, as well as to lessen the tendency to taking cold.

Hot Water externally, as fomentations, hot wet pack, baths, etc., is most effective in reducing local congestion and setting up resolution of local inflammation. Hot fomentations to the renal region are useful in functional inactivity of the kidneys. The hot spinal douche is used in affections of the spinal cord and meninges, and in the backache of women. The hot wet pack is highly esteemed in inflammations of the chest organs, and hot injections for chronic inflammation of the uterus. Hot water dressings for wounds are strongly recommended by many high surgical authorities. Vapor and Turkish baths are used as diaphoretics in advanced kidney disease, in acute and chronic rheumatism, mineral poisoning, and syphilis. Warm baths, with cold applications to the head, are esteemed as of value in infantile convulsions and chorea.

Internally, water is chiefly of value as a diuretic, and if hot as a diaphoretic. A glass of cold water before breakfast daily is often an effective means of overcoming constipation, while the drinking of hot water an hour before each meal has been of great value to many dyspeptics. The value of the popular teas in chronic diseases is almost entirely due to the diluent, diuretic and diaphoretic actions of the hot water used.

Carbonated Water, or "Soda-water," as it is popularly called, is employed as a grateful beverage in hot weather, being flavored with various syrups. It is also an agent of great value for febrile cases, as it allays thirst, lessens nausea, and promotes the secretion of urine. It forms an excellent vehicle for the administration of the saline cathartics, especially Magnesium Sulphate, and of the various carbonates. It is one of the numerous agents which have been found efficacious in the vomiting of pregnancy.

THERAPEUTICS OF THE MINERAL WATERS.

An undue value is placed by the laity and interested proprietors on the medicinal value of mineral waters, causing the various localities of the best advertised springs to become resorts for invalids and idlers from every civilized country. The benefit derived is in most instances due to the change of climate and scene, freedom from home cares and business worry, regularity of life and diet, drinking of water in quantity, and in many cases the substitution of water for alcoholic beverages. In order to get the worth of their money, people will gladly submit to rigid hygienic and dietetic restrictions at a watering-place which they would totally ignore at home. The same may be said of the treatment at the so-called "hydropathic" or "water-cure" establishments. As a rule, those springs will prove of most value which are furthest removed from the patient's residence, for "distance lends enchantment" in these matters as well as in many others. Invalids whose homes are in the vicinity of some wonder-working spring will not usually derive any benefit from its water, but will by that of another spring, similar in constituents, but located several hundred miles away.

The principal affections in which mineral waters are esteemed most highly are the following: dyspepsia, cirrhosis of the liver, gout, rheumatism, lithiasis, diabetes of hepatic origin, constipation, strumous disorders, obesity, plethora of the pelvic organs, hypochondriasis, skin diseases, especially those depending on gastric derangement, phthisis, constitutional syphilis, metallic poisoning, etc., in all of which the influences above mentioned are especially efficacious, and are no doubt the chief factors in producing any benefit which may be attainable. Aperient and purgative waters are useful in many cases where a prejudice exists against purgative medicine, but none against the same agents in a natural water. The strong saline-aperient waters, as Carlsbad, Hunyadi, Friedrichshall, etc., have considerable repute in the treatment of the uric-acid diathesis and calculous affections, and the waters of St. Catherine's Wells are credited with decided influence upon local and chronic rheumatism.

The special therapeutics of mineral waters are to be found in this volume under the heads of their principal constituents, as Sodium Chloride, Sodium Sulphate, Magnesium Sulphate, etc., also in the therapeutical part of the work.

ARGENTUM, Silver, Ag,—is represented by the following four official salts, viz.—

Compounds of Silver and their Preparations.

Argenti Nitras, Nitrate of Silver, $AgNO_3$,—occurs in colorless rhombic crystals, of bitter caustic taste and neutral reaction, soluble in 0.8 of water and 26 of alcohol at 59° F. Is best given in pill or distilled water; never with tannin or a vegetable extract, lest an explosive compound result. Dose, gr. $\frac{1}{6}$–$\frac{1}{2}$,—if watched up to gr. j may be given. When melted with 4 per cent. of Hydrochloric Acid it makes—

Argenti Nitras Fusus, Moulded Nitrate of Silver, Lunar Caustic,—for local use as a mild caustic and an astringent. *Argenti Nitras Dilutus*, Diluted Nitrate of Silver, Mitigated Stick,—is the same melted with an equal weight of Potassium Nitrate. Is used locally,by ophthalmologists.

Argenti Cyanidum, Cyanide of Silver, AgCN,—has no medicinal use except for the extemporaneous preparation of Hydrocyanic Acid. (See *ante*, page 67.)

Argenti Iodidum, Iodide of Silver, AgI,—a greenish-yellow powder insoluble in water or alcohol. Is used instead of the nitrate internally, as it is supposed not to discolor the skin. Dose, gr. ¼–j in pill.

Argenti Oxidum, Oxide of Silver, Ag_2O,—a brownish-black powder, nearly insoluble in water and insoluble in alcohol. It should not be triturated with readily oxidizable or combustible substances, and should not be brought into contact with ammonia. Dose, gr. ½–ij in pill. Is not dangerous.

All the silver salts should be protected from light in dark amber-colored vials.

PHYSIOLOGICAL ACTION.

NITRATE OF SILVER is a powerful astringent and a limited escharotic. Applied to the skin or mucous membrane it combines with the albumen of the tissue, excites superficial inflammation, which is soon followed by an altered condition of the part, and stains the same black under the influence of light. The stains may be removed by washing with a strong solution of Potassium Cyanide. Given internally in small doses it increases secretion, stimulates the heart, promotes nutrition, and acts as a nerve tonic. Its continued use produces symptoms which are collectively termed *Argyria*, and are as follows: gastro-intestinal catarrah, tissue waste, uræmia, albuminuria, fatty degeneration of the heart, liver and kidneys, hemorrhages, fluidity of the blood, a slate-colored line along the margin of the gums, and a similar discoloration of the skin and mucous membranes, with centric impairment of the nervous system producing paralysis on a large scale, loss of coördination power, convulsions, and finally death by paralysis of respiration. Large doses produce violent gastro-enteritis, also ulcer of the stomach from thrombosis of its veins, and destruction of the gastro-intestinal mucous membrane.

The IODIDE and OXIDE are sometimes used to produce the same constitutional effects, they being supposed not to discolor the skin, but this has been found to be fallacious. The oxide is much the least irritant of the silver salts.

Antagonists and Incompatibles.

Common Salt freely used is the antidote, precipitating the insoluble chloride of silver and acting as an emetic. The nitrate is exceedingly sensitive to organic material and light, which decompose it readily. Incompatibles are all the soluble chlorides (hence it should be used in distilled water), most of the mineral acids and their salts, alkalies and their carbonates, limewater and astringent infusions.

A course of silver medication should be regulated by suspending the remedy after 5 or 6 weeks' use, and then promoting elimination by purgatives, diuretics and baths. To prevent the general discoloration Potassium Iodide should be given conjointly with the silver, and baths of Sodium Hyposulphite used frequently.

THERAPEUTICS.

Locally the NITRATE is much used as a stimulant application, an astringent, a caustic, an alterative and an antiphlogistic. To ulcers and in throat affections the solid stick may be used, but solutions of various strengths from gr. j to gr. xl to the ℥ are much better. The mildest solutions are employed in conjunctivitis (never over the cornea), the stronger in throat and mouth affections, and the strongest in lupus, erysipelas and other skin diseases. A solution in Nitrous Ether (gr. xl to the ℥) is said to abort superficial inflammations if applied early to the neighboring integument, and in erysipelas a solution of gr. xx to the ℥ is often used over the inflamed surface and beyond, after careful washing and drying, in the hope of preventing the extension of the disease, which it will not do. The mucous membranes of the conjunctiva, fauces, larynx, urethra, bladder, uterus, vagina and rectum, have all been subjected to the local action of this salt.

Internally the silver salts are used in dyspepsia with vomiting of yeasty fluid, chronic gastritis and gastric ulcer, dysentery of chronic type, especially if rectal ulcer (the Nitrate internally and by enema), the diarrhœa of phthisis and typhoid fever (Nitrate with Opium), chronic spinal inflammations causing locomotor ataxia or paraplegia, and epilepsy, in the latter affection the Nitrate having occasionally given good results.

The OXIDE has been used internally for gastric neuralgia, irritative dyspepsia, pyrosis, gastric and pulmonary hemorrhages, and menorrhagia. The IODIDE is used to obtain the constitutional effects of silver, but has no advantage over the other preparations.

ARNICA,—is the plant *Arnica montana* or Leopard's Bane, a perennial of the nat. ord. Compositæ, indigenous to the mountains of Northern Europe and Siberia, and said to have been also found in the mountains about the headwaters of the Missouri and Columbia rivers. It has large orange-yellow flowers, and a small, curved rhizome with several rootlets. Both the flowers and the root are official. Its most important constituent is *Trimethylamine*, C_3H_9N, an ammoniacal alkaloidal principle which is probably the active ingredient. It also contains *Arnicin*, *Inulin*, *Capronic* and *Caprylic Acids*, tannin, mucilage, resins, and two essential oils, one of which exists in the flowers, the other in the root.

ARNICÆ FLORES, Arnica Flowers,—the flower-heads of *Arnica montana*, large, yellow, having 14 to 16 strap-shaped florets in the ray, twice as long as the disk, which consists of numerous tubular florets. The odor is feebly aromatic, the taste bitter and acrid. Used in Tincture and Infusion.

ARNICÆ RADIX, Arnica Root,—the rhizome and rootlets of *Arnica montana*, is about 2 inches long and ⅛ to ⅙ inch thick, externally brown and rough from leaf-scars; internally whitish, with a thick bark containing a circle of resin-cells and a large, spongy pith. Odor somewhat aromatic, taste pungent, aromatic and bitter. Resembles *Valerian*, which is distinguished by its smell; *Serpentaria*, which has many contorted rootlets; and *Veratrum Viride*, which has thicker rootlets. Dose, gr. v–xx.

Preparations of the Flowers.

Tinctura Arnicæ Florum,—20 per cent. Dose, ♏v–xxx.

Infusum Arnicæ (Unofficial),—Arnica flowers 20 in 100 parts of water, is thought by many observers to be the best form for local use, as it does not excite dermatitis, probably from containing none of the Volatile Oil, or the insoluble principle Arnicin.

Preparations of the Root.

Extractum Arnicæ Radicis,—Dose, gr. j–iij.

Extractum Arnicæ Radicis Fluidum,—Dose, ♏v–xx.

Tinctura Arnicæ Radicis,—10 per cent. Dose, ♏v–xxx.

Emplastrum Arnicæ,—contains Extract of Arnica Root 50 parts to 100 of Lead Plaster.

Derivative.

Trimethylamina, Trimethylamine, C_3H_9N (Unofficial),—is a thin, colorless, strongly alkaline liquid, boiling at 50° F., and at ordinary temperatures is a colorless, inflammable gas. The Hydrochlorate is the most stable salt, crystallizing in white or colorless prisms, nearly odorless, of pungent taste, very deliquescent, and freely soluble in water and in alcohol. Dose, gr. ij–iij in syrup every 2 hours.

Trimethylamine has been obtained from Arnica flowers and those of several other plants, from Ergot, Hops, Codeine, Cod-liver Oil, and decomposing albuminous substances, such as human urine, herring-pickle, and the residue left in making sugar from beets. It is sometimes incorrectly named *Propylamine*, a term also applied to an impure trimethylamine, but in reality an allied and isomeric compound.

PHYSIOLOGICAL ACTION.

ARNICA is irritant, stimulant, depressant, antipyretic, diuretic and vulnerary. It irritates the gastro-intestinal tract, and in some persons the local use of an alcoholic preparation of the flowers will excite erysipelatous inflammation of the skin, though those of the root have not been observed to do so. In small doses internally it increases the action of the heart, raises the arterial tension and stimulates the action of the skin and the kidneys. Large doses produce a transient excitement, followed by depression of the circulation, respiration, and nerve-centres; headache, unconsciousness, and even convulsions being induced, the body-temperature lowered, the pupils dilated, and muscular paresis produced. A toxic dose paralyzes the nervous systems of animal and organic life, causing collapse and death.

TRIMETHYLAMINE is an active escharotic and a gastro-intestinal irritant. It lowers the rate and force of the heart, decreases the body-temperature, and diminishes (though sometimes increases) the excretion of urea. The Hydrochlorate is a powerful antipyretic in doses of gr. ij every 3 hours.

THERAPEUTICS.

ARNICA is a popular remedy with those who patronize the so-called homœopathic school of practice, but, like many other agents which the homœopathists claim to have given to medicine, it is a remedy much older than homœopathy, and was investigated originally by regular physicians, notably by Van der Kolk in the sphere of mental affections.

Externally, the tincture in water has a popular reputation in sprains, bruises, etc., though an infusion is better for local use. Ecchymoses are rapidly dispersed by its administration internally as well as externally; and, in internal bruises from shocks or concussions, its internal use has proven very efficacious. The aqueous preparation locally promotes the rapid union of cut surfaces.

Internally, besides its value as noted above, Arnica is undoubtedly effectively employed in typhus and typhoid fevers as a stimulant and antipyretic, also in delirium tremens, rheumatism and rheumatic gout, hemorrhages, epistaxis, hemoptysis, amaurosis, concussion of the brain, chronic dysentery, and paralysis of the bladder.

In idiopathic mania, after the first excitement has diminished, Arnica, in aqueous preparation internally, has given great satisfaction. It has often checked an exhausting diarrhœa after many other remedies have failed.

Trimethylamine has been found useful in acute rheumatism and gout, relieving pain, reducing temperature, and diminishing the frequency of the pulse. In chronic rheumatism, as a liniment (1 to 3 of Glycerin), it is said to give relief equal to that produced by any anodyne. It has also been used with benefit in chorea, moderating the spasmodic movements when not suspending them entirely.

ARSENIUM, Arsenic, As.—The metal Arsenic is not used in medicine, but is represented by one of its Oxides, a salt of another Oxide, and the Iodide, which are official; together with four preparations of these compounds, or of their salts, viz.—

Arsenic Compounds and their Preparations.

Acidum Arseniosum, Arsenious Acid, Arsenious Oxide, White Arsenic, As_2O_3,—is a heavy, white solid, occurring as an opaque powder, or in semi-transparent masses having usually a striated appearance, soluble in 30 to 80 of water at 59° F., the solubility varying with its physical condition, also soluble in 15 of boiling water, in alkalies and their carbonates, hydrochloric acid and in glycerin. It is volatilized at 424.5° F., without melting, and when thrown on ignited charcoal it emits an alliaceous odor. Arsenious Acid is obtained by roasting native arsenides, and condensing the fumes in a long horizontal chimney. Dose, gr. $\frac{1}{30}$ to $\frac{1}{10}$.

Liquor Acidi Arseniosi, Solution of Arsenious Acid (Liquor Arsenici Hydrochloricus, B. P.), is a 1 per cent. solution of Arsenious Acid in Hydrochloric Acid and Distilled Water. Dose, ♏ij–x.

Liquor Potassii Arsenitis, Solution of Arsenite of Potassium, Fowler's Solution,—is prepared by boiling together Arsenious Acid 1, Bicarbonate of Potassium 1, and Distilled Water 10; then adding Compound Tincture of Lavender 3, and Distilled Water up to 100 parts. Dose, ♏ij–x.

Sodii Arsenias, Arseniate of Sodium, $Na_2HAsO_4.7H_2O$,—is a salt of the second oxide, Arsenic Acid, As_2O_5. It is in colorless, prismatic crystals, of feebly alkaline taste and a faintly alkaline reaction, soluble in 4 of water at 59° F., very soluble in boiling water, hardly soluble in alcohol. Dose, gr. $\frac{1}{16}$–$\frac{1}{8}$; of the dried salt, gr. $\frac{1}{24}$–$\frac{1}{12}$.

Liquor Sodii Arseniatis, Solution of Arseniate of Sodium, Pearson's Solution,—has of the Arseniate dried 1 part in 100 of Distilled Water. Dose, ♏ij–xv.

Arsenii Iodidum, Iodide of Arsenic, AsI_3,—in glossy, orange-red, crystalline masses or scales, gradually losing iodine by exposure to the air, soluble in 3½ of water and in 10 of alcohol at 50° F., is gradually decomposed by boiling water and by boiling alcohol, and is completely volatilized by heat. Dose, gr. $\frac{1}{20}$–$\frac{1}{8}$.

Liquor Arsenii et Hydrargyri Iodidi, Solution of Iodide of Arsenic and Mercury, Donovan's Solution,—has of Iodide of Arsenic 1, Red Iodide of Mercury 1, in 100 parts of Distilled Water. Dose, ♏ij–x.

Unofficial Salts of Arsenious Acid.

Cupri Arsenis, Arsenite of Copper,—occurs in the various cupro-arsenical pigments, Scheele's green, Mineral green, Paris green, etc., used for wall-paper coloring, and as insect poisons. It is highly poisonous.

Arsenii Bromidum, Bromide of Arsenic. Liquor Bromi Arsenitis, Solution of the Arsenite of Bromine, Clemen's Solution. Dose, ♏j–iv, in water, twice daily after meals.

PHYSIOLOGICAL ACTION.

Arsenious Acid, when applied to the skin denuded of its epidermis, acts as a painful escharotic, producing violent inflammation and resulting in a slough which forms a barrier to its absorption. If applied in dilute solution over a large surface, it will be absorbed, and may produce the systemic effects to be described.

In small doses it is a stomachic and general tonic, promoting the appetite and digestion, increasing the cardiac action, the respiratory power, and the intestinal secretions,—stimulating peristalsis, exalting mental activity and the sexual appetite, and producing a fair skin and a rotund form. When tolerance of the drug is established, large doses are used with impunity, as by the arsenic-eaters of Styria, who can swallow at once as much as 5 grains with safety. They are careful, however, not to take any water into the stomach at the same time, so that the dose is slowly absorbed, and probably eliminated rapidly. Not all those who begin its use can acquire tolerance of it, but those who do so seem to continue it without injury, and live to an old age, undergoing great exertion without exhaustion, and being enabled to ascend steep mountains without difficulty of respiration.

In full medicinal doses, continued for some time, it causes itching and œdema of the eyelids, ptyalism, nausea and vomiting, diarrhœa or dysentery, epigastric pain and soreness, feeble and irritable heart, dyspnœa, disordered sensibility, herpes zoster, urticaria, eczema and other skin eruptions, jaundice and albuminuria.

In large doses, it is a powerful irritant to the gastro-intestinal and bronchial mucous membranes. *Toxic doses* may produce either symptoms of gastro-enteritis, or those of profoundly narcotic character. In the first and most usual form of acute arsenical poisoning, there is burning pain in the throat and stomach extending over the abdomen, vomiting, thirst, bloody stools, strangury, suppressed, albuminous or bloody urine, rapid and feeble heart, great anxiety, cold breath, finally exhaustion and collapse,—a group of symptoms much resembling cholera. Autopsy shows erosions, ecchymoses, and softening of the gastro-intestinal mucous membrane, congestion of the lungs and bronchi, and fatty degeneration of the liver, kidneys and cardiac muscle. The poison is found in the urine, saliva, tears, sweat, etc., and may be detected even in the parenchymatous tissues. In the nervous form of poisoning by Arsenic, profound coma and insensibility come on suddenly without any gastro-intestinal symptoms.

Arsenical preparations are generally classed as alteratives, but they are valuable tonics and antiseptics, and possess antiperiodic powers second only to those of Quinine.

Chronic Arsenical Poisoning may occur from the inhalation of arsenical vapors or dust arising from wall-papers or other substances containing the poison. The quantity necessary to produce symptoms of poisoning when inhaled seems to be very small. The most prominent symptoms are, at first increased appetite, next colicky pains, mucous or dysenteric stools, irritation of the eyes, coryza, a short, dry cough, and a white and silvery tongue, all accompanied by great bodily prostration.

To avoid arsenical poisoning during a course of the drug, full doses (♏x of Fowler's Solution) should be used at the commencement, and always taken on a full stomach. The dose should then be steadily reduced. Susceptible persons often tolerate it better if a few drops of Tinctura Opii are administered with each dose.

Antidotes and Incompatibles.

Poisoning by Arsenic is treated by prompt evacuation of the stomach, and washing it by means of the stomach pump, then Magnesia, Chalk and Lime-water freely, or better still, the chemical antidote to Arsenic in solution, viz., the HYDRATED OXIDE OF IRON, freshly precipitated and in a soft magma, in the proportion of gr. viij for each grain of the poison ingested. (See FERRI OXIDUM HYDRATUM for the preparation of this antidote.) Oil or mucilaginous drinks should be given to protect the mucous membranes, and diluents, alkaline mineral waters or Iodide of Potassium to promote elimination. DIALYZED IRON has been shown to be quite efficient as an antidote, and is more easily obtained than the hydrated oxide. It has rendered good service in many cases of poisoning from inhalation of arsenical fumes.

Incompatibles are the salts of iron, magnesia and lime, and astringents.

THERAPEUTICS.

Externally, Arsenic has been employed in the form of paste as a depilatory, and as an escharotic in cancers, but is excessively painful. Most of the secret "cancer-cures" have arsenious acid for their basis. Internally, it is used as a tonic and astringent to the intestinal canal, as a tonic and antispasmodic in nervous diseases, and for its action on tissue change. It is of especial value in irritative dyspepsia, gastralgia, pyrosis, gastric ulcer or cancer, regurgitation of food without nausea, diarrhœa coming on immediately after taking food, vomiting of drunkards and chronic alcoholism. It has proven of signal service in the commencement of phthisis, and in catarrhal pneumonia, probably by causing fatty degeneration of the exudation in the alveolar cavities, thus breaking it up and quickening its absorption. It is often very serviceable in chronic bronchitis with copious expectoration, in acute catarrh, hay-fever, whooping-cough, asthma, chorea, epilepsy, angina pectoris and other spasmodic nervous disorders. In many forms of neuralgia, it often gives prompt and permanent relief, especially in cases due to malarial poisoning. As an antiperiodic, it has high rank, being, however, of particular value in chronic malarial poisoning, and as an adjunct to Quinine in the intervals between the paroxysms of intermittents. Anæmia and chlorosis are remarkably benefited by it, and in rheumatic arthritis and chronic rheumatism it is sometimes of great service. In chronic scaly and papular skin-diseases its value is very great, but it is not serviceable in acute forms, and the more chronic the cutaneous affection the more likely is it to be amenable to Arsenic. Epithelioma may be retarded by small doses long continued, and it has certainly been useful in delaying the progress of other cancers, particularly scirrhus of the stomach and uterine carcinoma. Hypodermically its solutions have been extremely efficient in histrionic spasm, local chorea of the head and neck, obstinate cases of general chorea, and in lymphadenoma.

The Bromide of Arsenic is much in favor, in the form of Clemen's Solution, as a remedy for diabetes of hepatic origin.

ASAFŒTIDA, Asafetida,—a gum-resin obtained by incision from the living root of *Ferula Narthex* and *Ferula Scorodosma*, perennial herbs of the nat. ord. Umbelliferæ, and natives of Persia and Afghanistan. It occurs in whitish tears embedded in grayish sticky mass, of alliaceous odor and taste, soluble in alcohol to at least 60 per cent., and triturated with water it yields a milk-white emulsion. Its principal constituent is a *Sulphuretted Volatile Oil*, consisting chiefly of Sulphide of Allyl, $C_6H_{10}S$; it also contains a gum and a resin, with ferulaic, malic, acetic, formic and valerianic acids. Dose, gr. v–xx.

Preparations.

Tinctura Asafœtidæ,—strength 20 per cent. Dose, ʒss–ij.

Mistura Asafœtidæ,—a watery emulsion of strength 4 per cent. Dose, ℥ss–℥ij.

Emplastrum Asafœtidæ,—Asafetida 35, Lead Plaster 35, Galbanum 15, Yellow Wax 15, and Alcohol 120 parts.

Pilulæ Asafœtidæ,—each has gr. iij with gr. j of Soap. Dose, j–iv.

Pilulæ Aloes et Asafœtidæ,—each has gr. 1⅓ of each ingredient.

Pilulæ Galbani Compositæ,—each has gr. ½ of Asafetida, and gr. jss each of Galbanum and Myrrh, with syrup. Dose, j–iv pills.

Mistura Magnesiæ et Asafœtidæ, Dewees' Carminative,—Magnesium Carbonate 5, Tinct. Asaf. 7, Tinct. Opii 1, Sugar 10, Aqua Dest. q. s. ad 100 parts. Dose, ʒss–℥ss.

Spiritus Ammoniæ Fœtidus (Unofficial),—Asafetida 1½, Liquor Ammoniæ Fortior 2, Spirit 20 parts. Dose, ʒss–j.

PHYSIOLOGICAL ACTION.

Asafetida is a powerful antispasmodic, a stimulant to the brain and nervous system, a stimulating expectorant, also tonic, laxative, diuretic, diaphoretic, emmenagogue, aphrodisiac and anthelmintic in action. Its odor and taste are extremely nauseous and persistent.

In small doses continued it is said to cause impaired digestion, alliaceous eructations, acrid sensation in the fauces, gastralgia, flatulent distention, fetid flatulence, burning urination, diarrhœa and tenesmus. Full doses produce various nervous or hysterical phenomena, with nausea, vomiting and purging.

The Volatile Oil diffuses into the blood and tissues, and is excreted in the urine, sweat, breath, etc. By its action the circulation is stimulated, the arterial tension raised, the power of the cardiac motor ganglia is increased and the inhibition relaxed. Asafetida also stimulates the brain even to a very pleasant intoxication, and produces a subjective sensation of warmth without any rise of body temperature. It stimulates the nervous system, the secretions and excretions, the menstrual flow and the sexual appetite. In Asia it is used as a condiment with food, and though at first it is extremely nauseous to most people, a taste for it may be readily acquired.

THERAPEUTICS.

The disgust which is generally felt for this remedy makes its use very restricted, though a valuable medicine. The Mixture is extremely serviceable in the flatulent colic of infants, and as an enema in infantile convulsions. There is no better remedy in hysteria and hypochondriasis with indigestion and flatulence,—in constipation with amenorrhœa of anæmic subjects, due to ovarian and intestinal torpor,—in bronchial affections, cough of habit, chronic catarrhs, and flatulent indigestion.

ASCLEPIAS, Pleurisy Root,—is the root of *Asclepias tuberosa,* a plant of the nat. ord. Asclepiadaceæ and a native of the Eastern and Southern States. Two other species of Asclepias are used in medicine and were formerly official. There are no official preparations, but a fluid extract is in the market, the dose of which is about ʒj every four hours. An infusion or decoction may be made in the proportion of ℥j of the powdered root to a quart of water, and given in teacupful doses every 2 or 3 hours.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Asclepias contains two resins, a peculiar principle, tannic and gallic acids, albumen, pectin, gum, various salts and a volatile, odorous, fatty matter. It is emetic and cathartic in full doses, also diaphoretic and expectorant, as well as depressant to the action of the heart, and probably slightly sedative and astringent. It is a popular remedy in the Southern States for pleurisy (hence its common name), and has been used in medicine for catarrh, pneumonia, phthisis, diarrhœa, dysentery, rheumatism, gastralgia, and to promote the eruption in exanthematous fevers. It is undoubtedly a powerful diaphoretic.

ASPIDIUM,—is the rhizome of *Aspidium Filix-mas* (Male Fern) and of *Aspidium marginale* (Marginal Shield Fern), plants of the nat. ord. Filices, the former found in most parts of the world, the latter indigenous to N. America. It is 3 to 6 inches long, thick, scaly, having fibro-vascular bundles within, arranged in an interrupted circle; odor slight but disagreeable, taste sweetish and bitter, astringent and nauseous. The active principle is *Filicic Acid*, $C_{14}H_{18}O_5$, which is extracted in the oleo-resin. It also contains a green, fatty oil, a volatile oil, resin, tannin, etc. Dose, ʒss–ʒjss in a single dose fasting, or in divided doses at short intervals, followed by a purgative.

Preparation.

Oleoresina Aspidii,—is an ethereal extract and deposits Filicic Acid on standing. It should be well shaken before being used. Dose, ʒss–ʒj, in capsules, repeated every 3 hours for 2 or 3 doses.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Aspidium is an efficient vermicide against tape-worm, particularly the unarmed variety (Bothriocephalus latus). The oleoresin is the best form in which to use it, the patient having fasted for the previous day, or only used a milk diet, ʒj may then be given in 4 doses ¼ hour apart. This may be repeated the next morning and followed by three drops of croton oil in emulsion. This is one of many methods. Brayera (Kousso) may be combined with it advantageously. A formula for a mixed treatment by Aspidium, Pomegranate and Pumpkin-seed is given under the title GRANATUM.

AURANTIUM, Orange,—occurs in two official varieties of fruit and flowers, viz., those of *Citrus vulgaris*, the Bitter Orange, and *Citrus Aurantium*, the Sweet or Portugal Orange, both trees of the nat. ord. Aurantiaceæ, cultivated in almost all warm climates. Other varieties are described under LIMON. The official titles are—

AURANTII AMARI CORTEX, Bitter Orange Peel,—the rind of the fruit of *Citrus vulgaris*, characteristics well known. Contains a Volatile Oil isomeric with Oil of Turpentine, $C_{10}H_{16}$, and a bitter, crystalline principle, *Hesperidin* or *Aurantiin*.

AURANTII DULCIS CORTEX, Sweet Orange Peel,—is the rind of the fruit of *Citrus Aurantium*. It contains a Volatile Oil differing from that of the bitter orange, and less of the bitter principle.

AURANTII FLORES, Orange Flowers,—the partly expanded fresh flowers of *Citrus vulgaris* and *Citrus Aurantium*. They contain an aromatic Volatile Oil (the official Oleum Aurantii Florum), and a trace of bitter principle.

Preparations.

Extractum Aurantii Amari Fluidum,—Bitter Orange Peel 100, Alcohol and Water. Used as flavoring. Dose, ʒ ss–j.

Tinctura Aurantii Amari,—Bitter Orange Peel 20, Diluted Alcohol q. s. ad 100. A flavoring preparation. Dose, ʒ j–ij.

Tinctura Aurantii Dulcis,—Sweet Orange Peel 20, Diluted Alcohol q. s. ad 100. For flavoring. Dose, ʒ j–ij.

Syrupus Aurantii,—Sweet Orange Peel 5, Alcohol 5, Calcii Phosphas Præcip. 1, Sugar 60, Water q. s. ad 100. Flavoring.

Oleum Aurantii Corticis,—a volatile oil, extracted by mechanical means from fresh orange peel. Is soluble in 2 of alcohol, and is an ingredient of Bay Rum (Sp. Myrciæ). Dose, gtt. j–v.

Elixir Aurantii, Simple Elixir,—Oil of Orange Peel 1, Sugar 100, Alcohol and Water q. s. ad 300. An excipient for extracts and tinctures, designed to replace the unofficial elixirs.

Spiritus Aurantii,—Oil of Orange Peel 6, Alcohol 94 parts. Dose, to be regulated by the quantity of alcohol desired.

Aqua Aurantii Florum, Recent Orange Flowers 40, Water 200 parts distilled to 100 parts. Dose, indefinite.

Oleum Aurantii Florum, Oil of Neroli,—a volatile oil, distilled from fresh orange flowers. Is the most important constituent of Cologne Water (Spt. Odoratus). Dose, gtt. j–v.

Syrupus Aurantii Florum, Orange-flower Water 35, Sugar 65. A delicate flavoring agent, but having to some persons an extremely sickish taste.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Orange is aromatic and tonic, also more or less bitter, but has little action except a mild influence on the nervous system due to its volatile oil. Persons much exposed to its fumes are liable to cutaneous eruptions and various nervous disorders. The oil may produce violent colic and convulsions in children, one case being reported in which death resulted from eating the rind. Its use in medicine is confined to flavoring purposes, though the preparations of the Bitter Orange may be used as mild tonics and stimulants to the digestion, but they are usually combined with more energetic agents for these purposes.

AURUM, Gold, Au,—is represented by but one official preparation. The Chloride is found in the shops, being much used by photographers; and triturations of the metal itself may be prepared according to the general formula therefor.

Preparations.

Auri et Sodii Chloridum,—is a mixture composed of equal parts of dry Chloride of Gold and Chloride of Sodium, $AuCl_3 + NaCl$. An orange-colored powder, soluble in water. Dose, gr. $\frac{1}{30}$–$\frac{1}{10}$.

Auri Chloridum (Unofficial),—occurs in needle-shaped prisms, of an orange-yellow color, deliquescent, freely soluble in water. Dose, gr. $\frac{1}{50}$–$\frac{1}{30}$. Is best given in solution.

PHYSIOLOGICAL ACTION.

Locally used the Chloride of Gold is escharotic; administered internally its action closely resembles that of the Bichloride of Mercury. In small doses, it promotes appetite and digestion, and stimulates the functions of the brain, producing marked mental exhilaration and a general sense of well-being. Continued, it induces aphrodisiac effects in both sexes, and in women increases the menstrual discharge. Full doses cause nausea and vomiting, glandular irritation, salivation without loosening of the teeth or sore gums, increased urinary discharge, sweat and fever (the auric fever); nutrition is impaired and rapid waste set up. A toxic dose produces effects similar to those from corrosive sublimate, namely, violent gastro-enteritis, mental disturbance, priapism, tremor, convulsions and paralysis.

Antagonists.

Poisoning is treated by albumen (eggs) or flour, and evacuation of the stomach—just as in the case of Corrosive Sublimate.

THERAPEUTICS.

Chloride of Gold is a useful remedy in irritative dyspepsia, gastro-duodenal catarrh, hypochondriasis, amenorrhœa, functional impotence, chronic metritis, habitual abortion, ovarian dropsy, vertigo and vertiginous sensations from disordered stomach. It is especially recommended in chronic albuminuria, hepatic sclerosis, granular and fibroid kidney, as it prevents hyperplasia of connective tissue. In syphilis its utility is proven beyond doubt, particularly in the tertiary manifestations and syphiloma of the bones, in which it is fully as efficacious as the Bichloride of Mercury, with incomparably less inconvenience to the patient.

Avena Sativa,—the common Oat, a plant of the nat. ord. Graminaceæ,—was official in the U. S. P. 1870, as *Avenæ Farina,* or Oat-meal. A concentrated tincture or fluid extract has recently been extensively advertised by drug manufacturers as a nerve stimulant and tonic, especially efficacious in the treatment of chorea, epilepsy, insomnia, nervous exhaustion, alcoholism and the Opium-habit. The seeds contain starch, gluten, gum, etc., and form a nutritious food, the meal being made into a porridge, or gruel. In the latter form it is a good demulcent for coughs. The pericarp contains an amorphous alkaloid, which has doubtless some stimulant and narcotic power; but the claims advanced for it, as a specific remedy for the cure of the opium-habit, have been strenuously denied by many competent observers. Dose of the concentrated tincture or fluid extract, may be stated at ♏x–ʒij.

AZEDARACH,—is the bark of the root of *Melia Azedarach,* or Pride of China, a handsome tree of the nat. ord. Meliaceæ, indigenous to China and India, but naturalized in the Gulf States. It occurs in curved pieces or quills, which are almost inodorous and have a sweetish taste, afterwards becoming bitter and nauseous. There are no official preparations, but a decoction of the fresh bark (℥ij to Oj boiled to O½) may be used in tablespoonful doses.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

This drug is known to produce symptoms of narcotic poisoning, as giddiness, dimness of sight, mental confusion, stertorous breathing, dilated pupils and stupor. Large doses are necessary to cause these effects, and some authorities question their occurrence. It is, however, a gastro-intestinal irritant, producing vomiting and purging, and an anthelmintic against the round-worm. Its active principle has not been isolated. It is only employed as an althelmintic against lumbricoid worms, and as the fresh bark is difficult to obtain in any region where it does not grow, other agents will be more generally used. It is given to horses affected with "bots."

BALSAMUM PERUVIANUM, Balsam of Peru,—is a balsam obtained from *Myroxylon Pereiræ*, a Central American tree, of the nat. ord. Leguminosæ. Occurs as a thick, brown-black liquid, its odor reminding of benzoin and vanilla, soluble in 5 of alcohol, almost insoluble in water which only extracts from it some Cinnamic Acid and Cinnamein. It is not a true balsam, as it contains no volatile oil. Composition is,—*Cinnamein* (Benzyl Cinnamate, $C_{16}H_{14}O_2$) 60 per cent., *Cinnamic Acid* 6 per cent., *Resins* 30 per cent.; also, Benzoic Acid, and other bodies. Dose, ♏x–xxv, in emulsion. There are no official preparations.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The actions of Balsam of Peru are those of its several constituents, namely, antiseptic, disinfectant, stimulant to the circulation, and sedative to the nervous system; acting chiefly on the mucous membrane, it is tonic and expectorant, diuretic and diaphoretic. In large doses, it causes gastralgia, nausea and vomiting, colic and diarrhœa. It closely resembles in physiological action its congeners Styrax and Benzoin.

Balsam of Peru is used locally in chronic skin diseases of inflammatory type and sore-nipples, to relieve itching, cleanse bed-sores, promote the healing of wounds and sores, and to kill the acarus scabiei, being considered by some authorities the best of all applications in itch. Internally, it is used as a stimulant and disinfectant expectorant in chronic bronchitis, asthma, etc., as well as in gonorrhœa, gleet, leucorrhœa, and other discharges from mucous membranes. Incorporated with Iodoform it partially covers the odor of that drug.

BALSAMUM TOLUTANUM, Balsam of Tolu,—is a balsam obtained from *Myroxylon toluifera*, a tree of the nat. ord. Leguminosæ, native in Venezuela and New Granada. Its composition and properties are similar to those of Balsamum Peruvianum, except that it is of lighter color, more agreeable odor, and contains a volatile oil, *Tolene*, in the proportion of about 1 per cent.

Preparations.

Tinctura Tolutana, Tincture of Tolu,—contains 10 per cent. of the balsam dissolved in 90 of alcohol. Dose, ♏x–xxx.

Syrupus Tolutanus, Syrup of Tolu,—has of the balsam 4 parts in 100 of sugar and water. Dose, ʒj–ij. Much used in cough mixtures. Covers the taste of Chloral well.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Balsam of Tolu has similar actions to those of Balsam of Peru, but being more agreeable in flavor it is used internally more than the latter. It is chiefly employed as a pleasant excipient in cough-mixtures, and is a constituent of the compound Tincture of Benzoin.

BAPTISIA, Wild Indigo (Unofficial),—is the root-bark of *Baptisia tinctoria*, a plant of the nat. ord. Leguminosæ, native in North America, and contains an alkaloid and a resin, neither of which have been examined critically. The so-called *Baptisin* is an impure resinoid, obtained by precipitation from the alcoholic extract with water.

Preparations.

Extractum Baptisiæ, Extract of Baptisia (Unofficial). Dose, gr. j–x.
Extractum Baptisiæ Fluidum (Unofficial). Dose, ♏ij–xx.
Tinctura Baptisiæ (Unofficial). Dose, ♏v–xxx.
Baptisin (Unofficial),—the resinoid. Dose, gr. j–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Baptisia has a bitter and acrid taste; in small doses it is laxative, in large violently emeto-cathartic, and may excite severe gastro-intestinal inflammation. It is a decided stimulant of the liver, and increases the secretions of all the glandular appendages of the gastro-intestinal mucous membrane. It has considerable power as an antiseptic.

Baptisia has been used locally in decoction or cataplasm to obstinate and painful ulcers, in threatened or existing gangrene, and gangrenous sores. Internally, it is a useful remedy in amenorrhœa, typhoid and typhus fevers, variola, scarlatina, and epidemic dysentery. In the common continued-fever, or in the first stage of typhoid, it will be found of great service in drop-doses of a fresh tincture, repeated every hour.

BELLADONNA, Deadly Nightshade,—is an herbaceous, perennial plant, of the nat. ord. Solanaceæ, having dark-purple, bell-shaped flowers, and glossy, purplish-black berries about the size of cherries. It is indigenous in the mountainous districts of Central and Southern Europe and Asia, and is cultivated in Europe and in the United States. It contains two alkaloids,—the official *Atropine* (see below), and *Belladonnine*, the latter being considered by many authorities as identical with Hyoscyamine, Daturine, and Duboisine. These exist in the plant in combination with *Malic Acid*. The plant also contains the usual vegetable constituents, as albumen, gum, etc., and a coloring principle named *Atrosin*. The official titles are as follows:

BELLADONNÆ FOLIA, Belladonna Leaves,—ovate and tapering, brownish-green above, grayish-green below, of slight odor and bitter, disagreeable taste. Stramonium leaves are more wrinkled, Hyoscyamus leaves are more hairy. Dose, gr. j, gradually increased.

BELLADONNÆ RADIX, Belladonna Root,—cylindrical, tapering, wrinkled pieces, ½ to 1 inch thick, nearly odorless, taste bitter and acrid. Dose, gr. j cautiously increased.

Preparations of the Leaves.

Extractum Belladonnæ Alcoholicum,—Dose, gr. $\frac{1}{10}$–$\frac{1}{2}$.
Tinctura Belladonnæ,—15 per cent. Dose, ♏j–xxx.
Unguentum Belladonnæ,—has of the Alcoholic Extract 10, Diluted Alcohol 6, Benzoinated Lard 84.

Preparations of the Root.

Abstractum Belladonnæ,—Dose. gr. $\frac{1}{10}$–j.
Extractum Belladonnæ Fluidum,—Dose, ♏j–v.
Emplastrum Belladonnæ,—made with Resin Plaster.
Linimentum Belladonnæ,—Fluid Extract 95, Camphor 5.

Atropine and its Derivatives.

Atropina, Atropine, $C_{17}H_{23}NO_3$,—in white, acicular crystals, odorless, of bitter taste and alkaline reaction; very soluble in alcohol and in chloroform, also in 600 of water at 59° F. Is decomposed by prolonged contact with caustic alkalies, and is resolvable into *Tropin* and *Tropic Acid*.

Atropinæ Sulphas, Sulphate of Atropine $(C_{17}H_{23}NO_3)_2H_2SO_4$,—a white powder of bitter taste and neutral reaction, soluble in 0.4 of water and in 6.5 of alcohol at 59° F. Dose, gr. $\frac{1}{120}$–$\frac{1}{60}$.

Homatropina, Homatropine, $C_{16}H_{21}NO_3$ (Unofficial),—is a derivative alkaloid obtained by the action of dilute HCl on Amygdalate of Tropin. The Hydrobromate of Homatropine is used by ophthalmologists as a mydriatic, its effects passing off much sooner than those of Atropine. Homatropine slows the heart, Atropine quickening it.

Tropeius (Unofficial),—is a result of the action of a mineral acid on Tropin.

PHYSIOLOGICAL ACTION.

BELLADONNA is an irritant narcotic, a mydriatic, an antispasmodic and an anodyne; in small doses a cardiac, respiratory and spinal stimulant—in large doses a paralyzer of the cardiac and respiratory centres, the spinal cord, the motor nerves and involuntary muscles. It produces congestion and dryness of the mucous membrane of the throat, mouth, nose and larynx, and at first lessens the gastric and intestinal secretions, but soon reproduces these in large quantity. The heart-rate is at first slowed, but soon becomes very rapid and vigorous, the pulse being doubled in rapidity; the arterial tension being at the same time raised, the circulation is greatly increased. This is accomplished by stimulation of the cardiac sympathetic, and paralysis of the pneumogastric, thus stimulating the accelerator apparatus while lessening the inhibitory. [Digitalis increases both.] The vasomotor ganglia are stimulated all over the body, but are afterwards paralyzed by over-stimulation, the heart weakens, the vessels relax, and the blood-pressure becomes greatly reduced. Complete motor paralysis follows, delirium, stupor, and finally death, which usually occurs by asphyxia.

The pupils are dilated by the local or systemic use of the drug, it stimulating the end-organs of the sympathetic and paralyzing those of the motor oculi, thus increasing the power of the radiating iris fibres and lessening the action of its circular ones. Atropine locally also paralyzes accommodation and increases the intraocular pressure. The least quantity of Atropine which will affect the pupil is stated at gr. $\frac{1}{10000}$ (Wood), gr. $\frac{1}{20000}$ (Roosa), gr. $\frac{1}{40000}$ (Ely), gr. $\frac{1}{128600}$ (Trousseau), gr. $\frac{1}{460000}$ (Loring), gr. $\frac{1}{700000}$ (Donders).

The brain is congested by Belladonna, headache, vertigo, busy delirium, hallucinations, etc., being produced, the latter from a selective action on the cells of the gray matter. The spinal cord is stimulated from the 3d cervical to the 10th dorsal vertebra, resulting in complete motor paralysis, central and peripheral, power being lost first in the lower extremities. Sensation is also impaired somewhat, but the muscular irritability is not. Respiration is increased and the body temperature elevated. Metamorphosis is greatly promoted by the increased activity of the circulation.

A diffused eruption of scarlet color, greatly resembling the eruption of scarlet fever, is often produced on the skin and fauces by Belladonna, with dysphagia and sore throat, and is sometimes followed by desquamation of the epidermis. It is due to capillary congestion caused by the greatly increased circulation.

Belladonna is rapidly diffused and quickly eliminated particularly by the kidneys. The urine of an animal under the action of the drug will dilate the pupil of another animal. Herbivorous animals and birds are scarcely susceptible to it, and pigeons are not affected by it at all.

ATROPINE has the same actions as above described, being the active principle of the plant. BELLADONNINE was long supposed to be inert, but has recently been shown to be identical with Hyoscyamine. It is a mydriatic when given internally, but not when used locally.

Antagonists and Incompatibles.

Opium is the physiological antagonist to the effects of Belladonna on the cerebrum, pupil, heart, respiration, arterial tension and kidneys. Physostigmine, Aconite, Pilocarpine and Quinine are each antagonistic to some of its effects, Muscarine to most of them. In poisoning by this drug, Tannic Acid and emetics should be used, then Morphine, Physostigmine or Pilocarpine for the nervous disturbances. Caustic alkalies decompose Atropine and are therefore incompatible with the preparations of Belladonna.

THERAPEUTICS.

BELLADONNA is one of the most valuable drugs in the Materia Medica, ranking with Aconite, Arsenic and Opium in efficacy and wide range of use. It is especially useful in the pain of inflammation, particularly that of rheumatism, gout, neuralgia due to peripheral disturbance, sciatica, cancer and pelvic affections. In cerebral and spinal hyperæmia, congestive headaches, encephalitis, meningitis and myelitis it proves one of the very best remedies. In erysipelas of superficial and non-vesicular character and when cerebral, it is really curative locally and internally administered. Inflammations of the lungs, iris, bladder, kidneys and breasts, are all amenable to it. In constipation from atony of the bowels it is remarkably efficient, and in the enuresis of children it is equally so if used freely, 10 to 20 drops of the tincture thrice daily. In recent cystitis from chill, spasm of the urethra, bladder and sphincter ani, typhus and typhoid fevers, acute nasal catarrh, sore throat with fever, inflammation, and swollen tonsils, many skin diseases, asthma and whooping-cough, epileptic and puerperal convulsions, spermatorrhœa and seminal losses, Belladonna is often a highly useful agent. Its local application is efficiently used in ulcers of the rectum, anal fissure, abscesses, boils, carbuncles, and other superficial inflammations. In scarlet fever it relieves many of the symptoms, and is especially indicated in this disease when the rash is imperfect, the pulse feeble and the condition one of adynamia. Its prophylactic power against scarlet fever is believed in by many of our best practitioners, though questioned by many others.

ATROPINE is used in poisoning by Opium, Physostigma, and Prussic Acid; in ptyalism from mercury, pregnancy, etc.; in the sweats of phthisis, sudden cardiac failure, and by eye-surgeons to paralyze accommodation, dilate the pupil, contract the vessels, lessen pain, and diminish (?) intra-ocular tension. In opium-poisoning, it should be given in very small doses, and repeated for effect, as most of the unsuccessful cases of its use in this connection were due to overdosing with the antagonist, superinducing belladonna-narcosis upon the opium-narcosis. In cases of heart-failure from Chloroform or Ether inhalation, the hypodermic injection of Atropine has, in the writer's hands, saved several lives when all other methods of resuscitation had failed.

BENZINUM, Benzin, Petroleum Ether,—is a purified distillate from American petroleum, consisting of hydro-carbons, chiefly of the marsh-gas series, having a specific gravity from 0.670 to 0.675, and boiling at 122° to 140° F. It is a transparent, colorless liquid, highly inflammable, very diffusive, insoluble in water, but soluble in alcohol, ether, etc. It should be distinguished from *Benzol*, which is called *Benzene* by English chemists. In pharmacy it has many uses, on account of its powers as a solvent for oils, fats, resins, caoutchouc and some alkaloids. Dose, gtt. v–x, on sugar or in mucilage.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Benzin is reported to have caused death in one case from gastro-enteritis, but ordinarily it does not produce vomiting or diarrhœa. It has been used with some success externally as a remedy for rheumatic pain, neuralgia, itch and prurigo; and internally as a vermicide against tapeworm. Its chief value is that of a solvent in cleaning old clothing and in pharmaceutical operations.

BENZOINUM, Benzoin,—is a balsamic resin obtained from *Styrax Benzoin*, a tree of the nat. ord. Styraceæ, native in Sumatra and Siam, by incision of its bark. It occurs in agglutinated tears or a brown, mottled mass, is soluble in alcohol and solution of potassa, and is composed of *Resins* 80 per cent., *Benzoic Acid* 10 to 20 per cent., and a trace of *Volatile Oil.* Some varieties of benzoin yield also *Cinnamic Acid.*

Preparations of Benzoin.

Adeps Benzoinatus, Benzoinated Lard,—has of Benzoin 2 parts in 100 parts of Lard.

Tinctura Benzoini, Tincture of Benzoin,—has of Benzoin 20 parts, Alcohol q. s. ad 100. Dose, ʒ ss–j.

Tinctura Benzoini Composita, Friar's Balsam,—has of Benzoin 12, Aloes 2, Styrax 8, Balsam of Tolu 4, Alcohol q. s. ad 100 parts. Dose, ʒ ss–ij.

Preparations of Benzoic Acid.

Acidum Benzoicum, Benzoic Acid, $HC_7H_5O_2$,—occurs in light, feathery plates and needles, and is obtained from Benzoin by sublimation. It is soluble in 500 of water, and in 3 of alcohol at 59° F., but its solubility in water is aided by Borax, one part of each being soluble in 100 parts. It is a constituent of Tinctura Opii Camphorata. Dose, gr. x–xxv, in wafers.

Ammonii Benzoas, Benzoate of Ammonium,—is soluble in 5 parts of water and in 28 of alcohol. Dose, gr. v–xxx.

Lithii Benzoas, Benzoate of Lithium,—soluble in 4 parts of water and in 12 of alcohol. Dose, gr. v–xxx.

Sodii Benzoas, Benzoate of Sodium,—is efflorescent on exposure to air, soluble in 2 parts of water and in 45 of alcohol. Dose, gr. v–ʒj.

PHYSIOLOGICAL ACTION.

BENZOIN is decidedly antiseptic and disinfectant, and when used externally is somewhat stimulant to the vessels. Its actions are due to its BENZOIC ACID, which taken internally produces slight epigastric heat, increases the pulse-rate, and stimulates the action of the skin, the salivary glands, and of the bronchial mucous membrane. It is chiefly excreted by the kidneys, in part as hippuric acid by combination with glycocoll, and in part unchanged. It renders the urine acid and increases its quantity. Benzoin is irritant to the fauces, and the powder inhaled excites sneezing and coughing.

THERAPEUTICS.

BENZOIN is principally used as a stimulant expectorant, especially in the chronic bronchitis of the aged, and by atomization in laryngeal affections. The compound tincture, ʒj to ℥j in a pint of boiling water, is a useful sedative inhalation for the irritation and cough of subacute laryngitis and tracheitis. It has also been used beneficially in chlorosis and some uterine disorders. The compound tincture is a good local application (1 to 4 of glycerin and water) for sore nipples and chaps of the hands and lips. For use as a cosmetic, either tincture is mixed with 20 parts of water, and employed to remove freckles and other skin affections, especially urticaria. They are excellent applications to foul-smelling wounds, and form the basis of all the proprietary preparations sold for that purpose.

Benzoic Acid and its salts are the only certain means we possess, by which to neutralize morbid alkalinity of the urine. In cystitis, with phosphatic deposits and alkaline urine, they are extremely valuable, acidulating the secretion, and stimulating and disinfecting the mucous surfaces involved. Phosphatic calculi are said to be dissolved by the long-continued use of Ammonium Benzoate.

Benzoate of Sodium has been largely used as a substitute for the salicylates in the septic diseases, being equally antiseptic and antipyretic. Though slower in action, its effects are more permanent, and it is capable of being used in larger doses (ʒij–iij daily). In diphtheria and scarlet fever it has been highly efficient, and in acute rheumatism, typhoid and the malarial fevers, it has rendered good service. In phthisis, its use by inhalation to the extent of $\frac{1}{1000}$ of the body-weight daily has seemed to be of value in some cases. It has also proven very efficient in whooping-cough.

Benzoate of Lithium is intended for use in gout and the uric acid diatheses, with the object of forming the very soluble urate of lithium in the system, as also on the theory that, as benzoic acid is converted into hippuric acid at the expense of nitrogenous material which would otherwise become uric acid, the latter product will be lessened.

BERBERIS, Barberry (Unofficial), is the root of several species of the nat. ord. Berberidaceæ, the one generally used being the *Berberis aquifolium*, or Oregon grape, which grows on the Pacific slope of the United States. Its value is probably due to its alkaloid, *Berberine*, $C_{20}H_{17}NO_4$, a yellow, crystalline body, soluble in hot water and alcohol, but not in ether, which is found also in several other plants, as Hydrastis, Coptis, Podophyllum, Menispermum, Calumba, Xanthoxylum, etc.

Preparations.

Extractum Berberidis Fluidum (Unofficial),—Dose, ♏v–xxx.

Tinctura Berberidis (Unofficial),—1 to 5. Dose, ♏x–ʒj.

Berberina, Berberine (Unofficial),—Dose, gr. j–x. Usually occurs in commerce as "Hydrastin," which is a Muriate of Berberine, prepared from Hydrastis.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

BERBERIS is an astringent bitter, a tonic and stomachic in small doses, but in large doses it is cathartic, producing watery diarrhœa with abdominal pain. It is also believed to possess considerable alterative powers.

BERBERINE has some antiseptic and antiperiodic value, and in large doses is a gastro-intestinal irritant.

BERBERIS has been successfully used as a local application in conjunctivitis, and internally as a remedy for intermittent, remittent and typhoid fevers, diarrhœa and dyspepsia. As an alterative and tonic it has been found useful in syphilitic and strumous affections, and in pain, soreness and burning sensations along the biliary or urinary tracts with a tendency to gravel or gall-stones it will be found a useful remedy.

The *Muriate of Berberine* is a useful injection in gonorrhœa, in which it acts by virtue of its antiseptic and astringent powers.

BERGAMII OLEUM, Oil of Bergamot,—is a volatile oil, extracted from the rind of the fresh fruit of *Citrus Bergamia*, an orange-tree of the nat. ord. Aurantiaceæ, native in Southern Europe. It is of greenish color, faintly acid, sp. gr. 0.87, and is soluble in alcohol, glacial acetic acid and liquor potassæ. It contains several hydrocarbons of the formula $C_{10}H_{16}$, together with *Bergaptene* or Bergamot Camphor. It is an ingredient of Spiritus Odoratus, and is exclusively used as a perfume in the manufacture of toilet articles.

BISMUTHUM, Bismuth, Bi,—is represented by three of its salts, and one combination of the Citrate with Aqua Ammoniæ.

Preparations.

Bismuthi Citras, Citrate of Bismuth, $BiC_6H_5O_7$,—is a white, amorphous powder, odorless and tasteless, insoluble in water or alcohol, but soluble in water of ammonia. Used only for pharmaceutical purposes.

Bismuthi et Ammonii Citras, Citrate of Bismuth and Ammonium,—is not proven to have any definite composition. Small, pearly scales, very soluble in water. Dose, gr. j–v.

Bismuthi Subcarbonas, Subcarbonate of Bismuth $(BiO)_2CO_3.H_2O$,—is a white or yellowish-white powder, tasteless, insoluble in water or alcohol. Dose, gr. x–ʒj, in powder or emulsion.

Bismuthi Subnitras, Subnitrate of Bismuth, $BiONO_3.H_2O$,—a heavy, white powder, odorless and almost tasteless, slightly acid, insoluble in water or alcohol. Dose, gr. x–ʒj.

PHYSIOLOGICAL ACTION.

The action of the last two Bismuth salts is chiefly a local one, being sedative to the end-organs of the nerves, though a minute quantity passes into the blood and acts as a tonic, promoting constructive metamorphosis by increasing the appetite and digestion. They are also feebly astringent, and produce constipation after a time, coloring the stools and tongue a dark clay color, from their conversion in part into the sulphide. Toxic effects when occurring are due to Arsenic, with which the commercial preparations are usually contaminated.

The Citrate of Bismuth and Ammonium, being soluble, is more rapid in action, more astringent and probably more irritant, though it is probably precipitated in the stomach by the hydrochloric acid of the gastric juice.

THERAPEUTICS.

The insoluble Bismuth salts are used internally in many forms of disordered digestion, gastralgia, vomiting and diarrhœa, especially in children, but large doses are necessary for efficiency. The best vehicle for them is milk. Locally they are used with advantage in acne rosacea, stomatitis, nursing sore mouth, eczema, intertrigo, ulcers, conjunctivitis, coryza, gonorrhœa, gleet and leucorrhœa. The Citrate is not used except for pharmaceutical purposes, and the Citrate of Bismuth and Ammonium is only serviceable in diarrhœa without irritation of the intestinal mucous membrane, but rather with relaxation thereof.

The Subiodide of Bismuth makes an excellent antiseptic dressing for ulcers and wounds.

BOLDUS, Boldo (Unofficial),—the leaves and stems of *Peumus Boldus*, an evergreen shrub of the nat. ord. Monimiaceæ, found in Chili. It contains a volatile oil and a bitter alkaloid, *Boldine*. A tincture is made (1 to 5), of which the dose is ♏v–viij, gradually increased, but large doses have a somewhat narcotic effect, besides causing vomiting and purging.

Boldo is used in anæmia, rheumatism, dyspepsia and general debility, also in catarrhal affections of the urinary passages, and as a substitute for Quinine. In France it is employed as a tonic, especially for cases with chronic torpor of the liver; and in South America it is much used in gonorrhœa and in chronic cystitis.

BRAYERA, Kousso,—is the female inflorescence of *Brayera anthelmintica*, an Abyssinian tree of the nat. ord. Rosaceæ. It occurs in bundles or rolls, of fragrant, tea-like odor, and bitter, nauseous taste, and contains tannic acid, a volatile oil, and a crystalline principle named *Koussin*, which by itself is apparently inert. Dose of Brayera ʒij–℥j.

Preparations.

Extractum Brayeræ Fluidum,—Dose, ʒij–℥j.
Infusum Brayeræ,—6 per cent. Dose, ℥iv–viij or more.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Kousso has little or no effect except the nausea, vomiting, colic and slight diarrhœa produced by large doses. Its chief action is anthelmintic against both varieties of tape-worm, but it rarely expels the head of the parasite, and is very nauseous to the taste and difficult of retention by the stomach in the large doses necessary to efficiency. ʒij to ℥j of the flowers infused in ℥iv of boiling water is the usual dose, and should be taken on an empty stomach and followed by a castor-oil or saline purge after 3 or 4 hours. An emulsion of the official infusion with castor-oil, yolk of egg, a few drops of ether and oil of anise with 10 to 20 drops of Oleoresin of Male-fern, is more agreeable and efficient than the infusion alone.

BROMUM, Bromine, Br.,—is a dark, brownish-red, volatile liquid, evolving an irritant vapor of peculiar and suffocating odor. It is soluble in 33 of water at 59° F., very soluble in alcohol, ether, chloroform and carbon disulphide; is a non-metallic element found in sea-water, and in the mother-liquor of certain salt-works, usually in combination. It is only used by inhalation and as an escharotic.

Bromides and their Preparations.

Potassii Bromidum, Bromide of Potassium, KBr,—colorless, cubical crystals, soluble in 1.6 of water, and 200 of alcohol. Dose, gr. v–ʒj.

Sodii Bromidum, Bromide of Sodium, $NaBr$,—colorless, monoclinic crystals, soluble in 1.2 of water, and 13 of alcohol. Dose, gr. v–ʒj.

Lithii Bromidum, Bromide of Lithium, $LiBr$,—a white, granular, deliquescent salt, very soluble in water and alcohol. Dose, gr. v–xx.

Ammonii Bromidum, Bromide of Ammonium, NH_4Br,—colorless, prismatic crystals, soluble in 1.5 of water, and 150 of alcohol. Dose, gr. v–xx.

Calcii Bromidum, Bromide of Calcium, $CaBr_2$,—a white, granular, deliquescent salt, very soluble in water and alcohol. Dose, gr. v–ʒj.

Zinci Bromidum, Bromide of Zinc, $ZnBr_2$,—a white, granular, deliquescent powder, very soluble in water and alcohol. Dose, gr. ½–ij.

Arsenii Bromidum, Bromide of Arsenic,—see under Arsenium, *ante*, page 117.

Syrupus Ferri Bromidi, Syrup of Bromide of Iron,—is a syrupy liquid containing 10 per cent. of Ferrous Bromide, $FeBr_2$, prepared by acting on Iron Wire 35 parts with Bromine 75, adding Sugar 600 and Water up to 1000 parts. A translucent, pale-green, odorless liquid of sweet, ferruginous taste and neutral reaction. Dose, ʒss–j.

[*Hydrobromic Acid* is described on page 64, *Ethyl Bromide* on page 79, and *Camphora Monobromata* under *Camphora*.]

PHYSIOLOGICAL ACTION.

BROMINE is an active and very painful escharotic, a deodorant and an antiseptic, setting free ozone. Its vapor is highly irritant to the respiratory mucous membrane and the eyes, producing cough, hoarseness and dyspnœa. Internally, it is an active, corrosive poison, causing violent gastritis, depression and collapse.

The BROMIDES are preëminently depressants of the cerebral and spinal functions, also alterative, antispasmodic and hypnotic. The Potassium salt is especially a cardiac and muscular paralyzant.

They have a saline taste, and are very diffusible, but slowly eliminated. They are decomposed in the blood, and reformed at the points of elimination (fauces, bronchi, intestines, skin and kidneys), where they irritate the mucous membranes. Continued for some time, they produce severe gastric catarrh. They reduce the number of the respirations, and the heart's action and force; and though diminishing the calibre of the arterioles, they lower arterial tension. They lessen the activity of the brain cells, producing somnolence; diminish the sensibility of the peripheral nerves, causing anæsthesia of the skin and mucous membranes. They impair motility and the sexual function, cause great pallor and emaciation, lowered body-temperature, acne on the face and upper extremities, fetid breath, dysphagia, sluggish reflexes and defective coördination; and if long continued may even impair the mental faculties, producing hallucinations in some cases, in others melancholia with suicidal tendency; also incompetence of the sphincters and paralysis, beginning at the periphery and extending to the centres. They sometimes cause maniacal excitement, as in the case of a physician who committed suicide in a frenzy caused by bromidizing himself for sea-sickness.

The general result of their action is termed "Bromism," and is heralded by the acne and lowered faucial sensibility. It is probably due to the sedative influence of these agents on the sympathetic system, causing general anæmia of the brain, spinal cord, sexual organs, and skin.

Differences in Action between the Bromides.

Potassium Bromide is the most toxic to the heart and the muscular system, and is the least hypnotic. It contains 66 per cent. of Bromine.

Sodium Bromide is the least toxic, but the most hypnotic, and acts most energetically on the circulation. It contains 78 per cent. of Bromine.

Ammonium Bromide resembles the Potassium salt in action, except that it exerts less influence on the heart and muscular system, and is somewhat more stimulating.

Lithium Bromide contains the most Bromine, 92 per cent., and resembles the sodium salt in action. It has proved better than the others in some cases of epilepsy, and is by several authorities considered to be the best hypnotic of the series.

Calcium Bromide is an efficient hypnotic, but otherwise much less active than the other salts.

Zinc Bromide, in large doses, is violently irritant. It is supposed to combine the tonic effects of zinc with the sedative actions of the bromides.

Ferrous Bromide is official only in the Syrup. It is supposed to combine the actions of iron and the bromides, and to produce the effects of a sedative chalybeate tonic. It is not an eligible chalybeate.

Antagonists and Incompatibles.

Vaso-motor stimulants, as Digitalis, Ergot, Belladonna, antagonize many of the effects of the Bromides, but *Morphine* is the most efficient antagonist, especially for the mental symptoms. Nitrous Ether is incompatible with the Bromide of Ammonium, and Acids and metallic salts are so with all the Bromides.

THERAPEUTICS.

The Bromides are used as sedatives to the nervous system, to lower reflex activity, to produce sleep, to subdue excitement of the genital apparatus, and to antagonize congestion of the brain. Their use is terribly abused, by patients, nurses, and even by physicians,—as Dr. Hammond well elucidates in the last chapter of his book on Nervous Diseases. They should not be used in anæmic conditions, and never for any length of time without the daily supervision of a physician. The combination of Potassium Bromide with Chloral is very unsafe in cases where fatty or weak heart exists, both drugs being active cardiac depressants. In convulsive and spasmodic affections the bromides are very efficient, and in epilepsy, especially when the seizures are diurnal, the sodium salt is used with great advantage over a long period, in sufficient quantity to maintain anæsthesia of the fauces. It requires occasional purgation to prevent its accumulation, and arsenic to combat the acne. In diabetes of nervous origin, the ammonium salt, long used, has proved curative by its sedative influence on the medulla; and in acute rheumatism it is an excellent alkali. In muscular rheumatism, rheumatic arthritis and myalgia, also in the uric acid diathesis, and the various affections due to undeveloped gout, the lithium salt gives good results. In tetanus and strychnine-poisoning the potassium salt, in large doses, is antagonistic. These agents are generally efficient in nervous erethism, insomnia with congestion, infantile colic, cholera infantum, vomiting of cerebral origin, cardiac irritability when not due to anæmia, delirium tremens, melancholia, whooping-cough and other reflex coughs, seminal losses when plethora exists, and nymphomania. The potassium salt is, by some writers, considered almost specific in subinvolution of the womb, and uterine hemorrhage not due to a mechanical cause.

BROMINE is not much used. Its vapor may be inhaled from hot water in acute coryza, hay-asthma, etc., and in chancre and hospital gangrene it is the best escharotic. In diphtheria and membranous croup, a solution of ♏viij to the ℥, used internally, and inhalation of the vapor have been used successfully in the most severe cases.

The Syrup of the Bromide of Iron has been reported by some observers as very efficient in chorea, and its usefulness as strenuously denied by others.

[The therapeutics of Hydrobromic Acid are detailed on page 65, *ante*.]

BRYONIA, Bryony,—is the root of *Bryonia alba* and of *Bryonia dioica*, European perennial plants of the nat. ord. Cucurbitaceæ. It occurs in transverse sections about 2 inches in diameter, having numerous small wood-bundles arranged in circles and projecting lines in the central portion, which is white or grayish. Its taste is acrid and bitter, but it is

the mucous membranes. Continued for
gastric catarrh. They reduce the
heart's action and force; and t
rioles, they lower arterial te
cells, producing somnolen
nerves, causing anæsth
impair motility and t
tion, lowered body-
fetid breath, dysp
if long continu
cinations in
also incom
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T
al

Bryonin, $C_{48}H_{80}O_{19}$, whi
in alcohol, but insoluble
ʒss-xxx.

a 10 per cent. solution of the root in alcoh

a violent poison in doses of from 3 to 4 grains. Dose, as

PHYSIOLOGICAL ACTION.

Bryonia is a pure irritant, setting up local inflammation wherever *applied, with febrile phenomena*. It has a vesicant action on the skin, *and is violently irritant to* the serous and mucous membranes. Taken *internally, it has caused* fatal gastritis; introduced into the pleura, fatal *pleuritis has resulted* with fibrinous effusion. It has a specific determina*tion to serous and* synovial membranes, especially the pleuræ, and is also *irritant to muscular* fibre, and to the bronchial mucous membrane, causing *dry, continuous*, shaking cough, with soreness behind the sternum. It *produces cerebral* congestion, with frontal headache, vertigo, and epis*taxis; also, hepatic* and renal congestion, burning pain and tenderness *in the hepatic* region with bilious disturbance amounting sometimes to *severe jaundice*, vesical tenesmus, and depression of the action of the *heart*. It is a drastic purgative and a powerful diuretic.

THERAPEUTICS.

Bryonia is a very old medicine, its most ancient reputation having been in epilepsy, hysteria and mania, conditions in which it is now superseded by other agents. It is a most valuable drug in the second stage of serous inflammations, especially in pleurisy, pleuro-pneumonia, and pericarditis, after Aconite has reduced pyrexia, to limit the extent of the effusion and to promote its absorption. For this, small doses frequently repeated are required. Also, in rheumatic fever, after the swelling of the joints has been reduced by other means, Bryonia is extremely efficient for the pain and stiffness. It is one of the best remedies for a "cold-on-the-chest," with dry, shaking cough, soreness, or shooting pains. It has been used with success in common, continued, or "gastric" fever, relapsing fever, congestive headaches increased by stooping, bilious headache with vomiting, gastralgia with pyrosis and soreness of the epigastrium, constipation, cholera infantum during dry, hot weather, congestion of the liver, croup, and threatened mammitis. Pains of shooting or tearing character, which are increased by movement, are often quickly relieved by this drug. In dropsies of various forms it is used as a drastic purgative and diuretic to remove the accumulated fluid.

CHU,—is the leaf of *Barosma betulina*, *B. crenulata*, and *B. serra-* S. African shrubs, of the nat. ord. Rutaceæ, each species having y-shaped leaves, but all the leaves having crenated or serrated and conspicuous oil-glands at the edges and on their under sur- They contain a *Volatile Oil*, which is probably the active principle, nd gives them a peculiar and penetrating odor, resembling that of pepper-mint; also, *Barosmin*, a bitter extractive, and resin, gum, lignin, etc. **Dose**, of the leaves, gr. xv–xxx.

Preparations.

Extractum Buchu Fluidum,—Dose, ♏x–ʒj.
Infusum Buchu (Unofficial),—℥j to the pint. Dose, ℥ss–ij.

PHYSIOLOGICAL ACTION.

Buchu in small doses causes a sense of heat in the stomach, which is gradually diffused over the body. It increases the pulse-rate, stimulates the appetite, and produces slight moisture of the skin. It increases the flow of urine, which becomes of darker color and strongly aromatic odor, and deposits a brownish sediment.

In large doses, it produces vomiting, purging, and strangury, with a burning sensation at the stomach.

THERAPEUTICS.

Buchu is of especial value in chronic affections of the genito-urinary mucous membrane, on which the volatile oil acts topically, being eliminated by the kidneys. It is a very useful remedy in pyelitis, cystitis, and urethritis; also, in lithiasis, chronic bronchitis, and affections of the prostate gland. It is recommended in atonic dyspepsia, chronic rheumatism, affections of the skin, and for dropsy, but it is not so actively diuretic as to be very efficient in the latter condition.

The infusion makes an excellent vehicle for saline diuretics.

CADMIUM, Cd (Unofficial).—This metal was official in the Pharmacopœia of 1870, but is no longer so. In its physiological action it resembles both Antimony and Zinc, being escharotic, astringent, and a very depressant emetic. In over-doses, its salts act as irritant poisons, with cerebro-spinal symptoms, such as coma and convulsions. It is never used internally. Its salts in general use are—

Cadmii Sulphas (Unofficial),—transparent oblique prisms, efflorescent, and very soluble in water. Used externally in a solution of gr. ss–iv ad ℥j aq. destil., or as an ointment (1 to 40 of fresh lard).

Cadmii Iodidum (Unofficial),—large, white, pearly crystals, soluble in water and alcohol. Used as an ointment, 1 to 8 of lard.

THERAPEUTICS.

The SULPHATE has been used almost exclusively as a stimulating astringent in gonorrhœa and diseases of the eye. Corneal opacities are inodorous. The active principle is the glucoside *Bryonin*, $C_{48}H_{80}O_{19}$, which is intensely bitter, and soluble in water and in alcohol, but insoluble in ether. Dose, of the powdered root, gr. x–xxx.

Preparations.

Tinctura Bryoniæ, Tincture of Bryonia,—a 10 per cent. solution of the root in alcohol. Dose, ♏v–℥ss.

Bryonin (Unofficial),—is a violent poison in doses of from 3 to 4 grains. Dose, as a drastic purgative, gr. ⅙–⅓.

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Cadmii Iodidum (Unofficial),—large, white, pearly crystals, soluble in water and alcohol. Used as an ointment, 1 to 8 of lard.

THERAPEUTICS.

The SULPHATE has been used almost exclusively as a stimulating astringent in gonorrhœa and diseases of the eye. Corneal opacities are absorbed under the use of a solution of gr. ij to the ℥, and in gonorrhœa a mild injection (gr. ¼ ad ℥j) is very beneficial. The ointment of the IODIDE has been usefully employed for enlarged glands, chronic joint affections, cutaneous diseases, nodes and chilblains.

CAFFEA, Coffee,—the seed of *Coffea Arabica*, is officially represented only by its active principle, *Caffeine*. The coffee-plant is a small tree, of the nat. ord. Rubiaceæ, 15 to 30 feet high, native of South Arabia and Abyssinia, but cultivated in various parts of the world. Its seeds contain *Caffeine* (partly free, partly as a tannate), tannic and caffeic acids, sugar, legumin, etc. By roasting them, part of the caffeic acid is converted into methylamin, the sugar is changed into caramel, and several volatile substances are formed, which give to coffee its peculiar aroma and some of its stimulant qualities, and are collectively known as *Caffeone*, one of them being called *Caffeol*.

Preparations.

Caffeina, Caffeine, $C_8H_{10}N_4O_2.H_2O$. The U. S. Phar. of 1880 defines *Caffeine* as "a proximate principle of feebly alkaloidal power, generally prepared from the dry leaves of *Camellia Thea*, * * or from the dried seeds of *Coffea arabica*, * * or from Guarana, and occurring also in other plants." According to this, the principles severally named Caffeine, Theine and Guaranine, were officially declared identical, and such was the general opinion until very recently; their composition being expressed by the formula $C_8H_{10}N_4O_2$, and the physiological action of one being accepted for the others. Recent investigations, however, leave no doubt as to the non-identity of the first two, and some observers maintain that Guaranine also is a separate body, distinct from either of the others. For the present, however, we must look upon it as identical with Caffeine. The Caffeine of commerce is usually obtained from old tea-leaves, and is in reality Theine. It contains more nitrogen than almost any other proximate vegetable principle. It occurs in colorless, flexible crystals, which are soluble in 75 of water and 35 of alcohol at 59° F. Dose, gr. j–v.

Extractum Caffeæ Viridis Fluidum (Squibb), Fluid Extract of Green Coffee (Unofficial),—is intended as a substitute for the Fluid Extract of Guarana. Dose, ʒss–ij. [Compare the title *Guarana*.]

Caffeinæ Citras, Citrate of Caffeine (B. P.). A very uncertain mixture, not considered a definite compound. Dose, gr. ij–x.

Theina, Theine,—that from Merck the most reliable. Its solubility in water is much increased by adding an equal part of Sodium Benzoate, say ʒj of each to the fluid ℥, with gr. x of Sodium Chloride. Of this, ♏vj equals gr. ½ of Theine. Dose, gr. ⅙–j, hypodermically, several times a day, for relief of pain.

Theine is contained in the leaves of *Camellia Thea*, the tea-plant, a native of China and Japan, and a member of the nat. ord. Ternstromiaceæ. The tea-plant also contains tannic acid, and a volatile oil, the latter being most abundant in green teas.

PHYSIOLOGICAL ACTION.

COFFEE is a cerebro-spinal stimulant, a stomachic tonic, and a laxative. It is decidedly diuretic, and is somewhat antiperiodic and highly antiseptic. The green bean produces very different effects from those of the roasted one, exhibiting the action of Caffeine alone, unmodified by that of the empyreumatic products. A tincture of green coffee, besides being an efficient diuretic, has marked anti-lithic powers, and promotes the elimination of the poison of gout from the system.

As a beverage, if used with moderation Coffee assists digestion, promotes intestinal peristalsis, allays the senses of fatigue and hunger, lessens tissue-waste and consequently decreases the formation and excretion of urea (?). Used to excess it disorders digestion, and causes functional disturbances of the nervous system, shown by headache, vertigo, mental confusion, and palpitation of the heart.

It increases secretion, blunts sensation, exalts reflex excitability, increases mental activity, and may produce insomnia and great nervous restlessness. It first briefly stimulates the heart and raises arterial tension, but soon depresses both. The wakefulness is usually preceded by a brief period of drowsiness.

The brief stimulation of the intellect, consequent on drinking a cup of good coffee, cannot be obtained from an infusion of raw coffee, and is probably due to the volatile constituents developed in roasting. *Caffeone* opposes Caffeine in its action on the circulation, as it quickens the pulse and lowers arterial tension. Its action, however, is of brief duration, and soon gives way to the influence of the principal constituent. The *Tannin* is the ingredient which enables it to produce dyspepsia, and is most abundant in those infusions which are kept a long time on the stove before being served.

THE COMMON STIMULANT BEVERAGES COMPARED.

THE QUALITIES possessed in common by these substances, and for which they are so universally esteemed by mankind, are three-fold. They all (1) retard the retrograde metamorphosis of the body-tissues (tissue-waste);—thereby enabling the work of the individual to be done upon a smaller supply of reparative material (food), and with less fatigue. Furthermore, when used in moderation, they are all (2) more or less stimulating to the mental processes, and (3) sedative to the nervous system.

This similarity of action they owe to the possession of principles, which, if not identical, are so closely related to each other that until very recently they have been so considered both by chemists and pharmacologists. Their divergence from each other, in the finer shades of their action, depends most probably on the existence in each of differing aromatic and volatile principles, which modify the action of the alkaloid in some degree. Similar principles are developed in them by the various processes of preparation (as roasting, drying, etc.), all of which have some part in determining the general action of the beverage containing them.

COFFEE is more stimulating than Coca, and less sustaining. It is apt to cause severe palpitations of the heart; and may disorder digestion, if long stewed. The Coffee-bean contains only 0.2 to 0.8 per cent. of Caffeine.

TEA (*Camellia Thea*) is the most refreshing and stimulating member of the group. Used to excess, it powerfully affects the stability of the motor and the vaso-motor nerves, the action of the heart, and the digestive function,—producing flatulent dyspepsia, tremulousness of the limbs, pallor of the surface, irregular cardiac action, and feeble impulse, hallucinations, night-mare, anorexia, headache, nausea and vomiting, obstinate neuralgiæ—especially of the supra-orbital and occipital nerves; also constipation, and a pain in the left side are not infrequent. The condition of chronic tea-poisoning is termed "Theism,"—and is very often seen among women of the lower class in cities, who do not indulge in alcoholic beverages, but freely accept the dominion of the "cup that cheers" and worse than inebriates.

MATÉ (*Ilex Paraguayensis*, Paraguay tea), is supposed to be intermediate in its effects between tea and coffee. It also contains Caffeine, in the proportion of 1.2 per cent.

GUARANA (*Paullinia sorbilis* of Brazil), contains an alkaloid—*Guaranine*, in the proportion of 5 per cent., which is probably identical with Caffeine, though some think it more analogous to Theine. It is especially noted for relieving a nervous headache, for which purpose the official fluid extract may be used in doses of ♏xx, three or four times daily, when the basis of that preparation happens to be of good quality.

COCA, or CUCA (*Erythroxylon Coca*), is more sustaining and less of a direct stimulant, than either tea or coffee. The proportion of Cocaine in the leaves varies greatly in different samples, as they occur in commerce.

COCOA (*Theobrŏma Cacao*, the Chocolate-tree), is more directly nutritious than any of the group, containing a large quantity of fat, *Oleum Theobromæ* (cacao-butter), which makes it difficult of digestion to many persons. Its alkaloid, *Theobromine*, is closely allied to Caffeine, the latter being considered a Methyl-theobromine. The various preparations of this agent are made from the seeds, after the oil has been expressed from them. They are ground in a mill, mixed with rice, barley, sugar, flour, etc., and put up in powdered form, called *Cocoa*,—but if flavored with vanilla and pressed into a cake, the product is *Chocolate*. The thin husks which envelope the seeds are known as "*Shells*," and are used to make a beverage similar to but milder than cocoa or chocolate.

CAFFEINE in general terms is a stimulant at first, and subsequently a paralyzant, to the nerve-centres in the cerebrum, medulla and cord. In small doses it quickens the action of the heart and raises arterial tension; stimulates the cerebral functions, by increasing the supply of blood to the brain; increases the respiration rate and the secretion of urine. Larger doses (gr. v–viij), often over-stimulate the cerebral circulation, causing thereby great heaviness of the head, flashes of light before the eyes, tinnitus aurium, insomnia, restlessness, and even delirium,—the pulse becoming rapid, feeble, irregular and intermittent, and the general body-temperature elevated, though that of the periphery may be lowered. Large doses depress the heart and respiration, and lower the blood-pressure;—in the smaller animals exalting the reflex excitability of the cord and producing tetanic convulsions;—and in lethal doses paralyzing the cardiac muscle as well as its motor ganglia, but causing death by paralysis of respiration. It powerfully affects muscular fibre, both voluntary and involuntary kinds, throwing it into a state of tetanic contraction resembling rigor mortis. If administered in sufficient quantity it would doubtless prove fatal to man,—but its lethal dose for him would be very large. Caffeine is excreted unchanged in the bile and urine, and is a reliable hydragogue diuretic; acting by stimulation of the secreting apparatus in the kidney, as well as by generally raising the arterial tension. (Brunton.)

THEINE, upon the smaller animals, agrees in most respects with Caffeine, except that it requires much larger doses to produce the same effects. It differs, however, in some important particulars. Theine chiefly affects the sensory, Caffeine the motor system. Theine causes spasms and convulsions, and impairs the nasal reflex, early in the course of the poisoning process;—while Caffeine does so late, if at all. Theine decreases the body-temperature,—Caffeine increases it. Theine causes convulsions in frogs, a power now denied to Caffeine, though hitherto ascribed to it. Both alkaloids tend to produce muscular contraction, but Theine causes a peculiar rhythmical contraction in voluntary muscles, which lasts for several hours, and seems to act transversely across the fibre, as the muscle is elongated at each contraction. In man, the principal action of the hypodermic injection of Theine is the production of a profound local anæsthesia at and below the point of injection,—acting therefore outwards along the nerve-trunk, and not towards the centre. It does not affect the motor apparatus, nor does it seem to produce narcosis.

GUARANINE is generally considered as identical with Caffeine, though some few observers find in its action a closer analogy to Theine. It affects both sensory and motor nerves, the sensory first, paralyzing them from the centres outwards. [*Cocaine* and *Brucine* act from the periphery inwards.] It causes general hyperæsthesia, and subsequently convulsions of spinal origin,—at first increases and afterwards depresses respiration and the action of the heart. It seems to have a stronger affinity for the sensory than for the motor nerves, and hence resembles Theine more than Caffeine.

THEOBROMINE has the formula $C_7H_8N_4O_2$, and is closely allied to Caffeine, physiologically and chemically. In fact, Caffeine may be considered a Methyl-theobromine, $C_7H_9(CH_3)N_4O_2$. During roasting the cocoa-bean develops an aromatic principle which gives to chocolate its peculiar flavor. In large doses Theobromine is fatal to small animals.

THERAPEUTICS.

Although without a very extensive range of usefulness, Caffeine is a valuable stimulant in many forms of nervous and cardiac depression, and has proved especially efficacious in headaches of neuralgic or nervous type, the pain being general over the head, gr. j of Caffeine every half hour, or the fluid extract of Guarana, in 20-minim doses every 2 or 3 hours. In choleraic diarrhœa, and that of phthisis, it checks outward osmosis by stimulating the depressed nervous apparatus. In dropsy, cardiac and renal, Caffeine as a diuretic and cardiac stimulant. In cervico-brachial neuralgia, Caffeine hypoder., gr. j, increased to gr. v. In lithæmia and gout, a tincture of the green bean has marked diuretic and antispasmodic powers, and is very useful in these conditions. In insomnia of chronic alcoholism, gr. ½ of Caffeine hypodermically. For adynamic fevers, it may well be used in place of alcoholic stimulants. In intermittents, Coffee has a curative reputation among the inhabitants of the Philippines, which is corroborated by the Dutch physicians. In asthma, if not used habitually, Coffee is valuable in the paroxysm. In opium narcosis, Caffeine hypodermically, or better still, strong black coffee, to antagonize the increasing torpor of the nervous centres.

THERAPEUTICS OF THEINE.

This alkaloid is a valuable analgesic, especially so by reason of its prolonged influence over sensation. Its great field of employment is in neuralgia of any kind, cervico-brachial, sciatic, etc., doses of gr. ⅙ to gr. ½ hypodermically, are efficient, and may be kept up as long as required. To make a cure, however, the nutrition of the nerves must be attended to. In locomotor ataxia, lumbago, etc., it has been used with prompt benefit, in the same manner, promptly relieving pain, without producing any narcotic effect. (Mays.)

CAJUPUTI OLEUM, Oil of Cajuput,—is a volatile oil distilled from the leaves of *Melaleuca Cajuputi*, a tree of the nat. ord. Myrtaceæ, native of the Molucca Islands. It is a bluish-green or colorless liquid, of camphoraceous odor, and neutral reaction. Specific gravity about 0.920, freely soluble in alcohol. It contains *Cajuputol* or Bihydrate of Cajuputene, which forms ⅔ of it, the other ⅓ being another oil. Dose, ℳj–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Cajuput Oil resembles Oil of Turpentine, and has similar actions to those of the other volatile oils, being a stimulant carminative, somewhat diuretic and diaphoretic, antiseptic, parasiticide and anthelmintic. Externally used, it is irritant to the skin. Swallowed, it produces a sense of warmth in the stomach and accelerates the pulse.

It is not much used internally, though it has been given with benefit in flatulent colic, dropsy, hysteria, chronic rheumatism, scrofula, syphilis, elephantiasis and other cutaneous disorders. Externally, as a strong, stimulating rubefacient, it is efficient in chilblains, muscular rheumatism and nervous headaches.

CALAMUS, Sweet Flag,—is the rhizome of *Acorus Calamus*, a plant of the nat. ord. Araceæ, native in Europe and North America, having an aromatic odor and pungent taste. The unpeeled root should only be used, peeled or bleached calamus being almost inert. It contains a volatile oil and *Acorin*, which is a nitrogenous, bitter principle, also benzoic acid, starch, etc. Dose, indefinite.

Preparation.

Extractum Calami Fluidum,—is made with Alcohol as a menstruum. Dose, ♏xv–ʒj.

Calamus is an aromatic bitter, and stomachic tonic, increasing the appetite and stimulating digestion. It is one of the constituents of the preparations termed "bitters," and is chewed as an appetizer.

CALCIUM, Ca,—is the metal characteristic of Lime, Chalk and all calcareous substances, and though itself unofficial is represented by several official salts and preparations.

Official Salts of Calcium.

Calcii Carbonas Præcipitatus, Precipitated Carbonate of Calcium, $CaCO_3$,—a fine, impalpable, white powder, odorless and tasteless, insoluble in water or alcohol, but soluble in mineral acids or acetic acid with effervescence. Creta (chalk) is the native carbonate of calcium (see below). Dose, gr. v–xx.

Calx, Lime, Oxide of Calcium, CaO,—hard, white masses, gradually resolving to a white powder in the air, odorless, of sharp, caustic taste and alkaline reaction, soluble in 750 of water and 1300 of boiling water, insoluble in alcohol. Not used internally except in solution. Is a constituent of Potassa cum Calce. (See under *Potassium*.)

Calcii Chloridum, Chloride of Calcium, $CaCl_2$,—hard, colorless masses, deliquescent, of sharp, saline taste, soluble in 1½ of water and 8 of alcohol at 59° F. Dose, gr. x–xx in solution.

Calcii Bromidum,—described under Bromides, *ante* page 133.

Calcii Hypophosphis,—described under *Phosphorus*.

Calcii Phosphas Præcipitatus,—described under *Phosphorus*.

Calcii Sulphidum,—described under *Sulphur*.

Preparations of the Carbonate.

Creta Præparata, Prepared Chalk,—is native carbonate of Calcium freed from most of its impurities by elutriation; a white, amorphous powder, odorless and tasteless, insoluble in water or alcohol. Dose, gr. v–xx. Is a constituent of Hydrargyrum cum Creta, and also of the following:

Pulvis Cretæ Compositus, Compound Chalk Powder,—has of Prepared Chalk 30, Acacia 20, Sugar 50 parts. Dose, gr. v–ʒj.

Mistura Cretæ, Chalk Mixture,—has of the preceding 20 parts, Cinnamon Water 40, Water 40, rubbed together and made fresh as required. Dose, ℥ss.

Trochisci Cretæ, Troches of Chalk,—each contains of Prepared Chalk 4 grains, Acacia 1, Sugar 6, with a little Nutmeg. Dose, indefinite.

Testa Præparata, Prepared Oyster shell (Unofficial),—contains animal matter intimately mixed with the carbonate of calcium. Dose, gr. x–xx or more.

Preparations of the Oxide.

Liquor Calcis, Solution of Lime, Lime-water,—contains about 0.15 per cent. of Calcium Hydrate, $Ca(HO)_2$. A clear, colorless liquid, of saline taste and alkaline reaction. Dose, ℥ ss–ij.

Syrupus Calcis, Syrup of Lime, Saccharated Solution of Lime,—contains 5 per cent. of Lime, 30 of Sugar, the latter aiding the solvent power. Dose, ʒ ss–ij. Is the antidote to poisoning by carbolic or oxalic acid.

Linimentum Calcis, Lime Liniment,—contains equal parts of Liquor Calcis and Cotton-seed Oil. Is nearly the same as the application known as "Carron Oil."

Calx Chlorata,—described under *Chlorine*.

Calx Sulphurata,—described under *Sulphur*.

Potassa cum Calce,—described under *Potassa*.

Preparations of the Phosphate and Hypophosphite.

Syrupus Calcii Lactophosphatis,
Syrupus Hypophosphitum, } are described under *Phosphorus*.
Syrupus Hypophosphitum cum Ferro,

PHYSIOLOGICAL ACTION.

LIME before it assumes the condition of Hydrate is irritant and caustic, and if inhaled or swallowed may produce dangerous inflammation. The preparations of Lime and Chalk are feebly alkaline and astringent; they neutralize the acid of the gastric juice and are sedative to the mucous membrane of the stomach. A small quantity of the oxide passes into the blood and promotes constructive metamorphosis,—but if used in large quantity or for a long time it will act in the opposite manner, producing waste.

CALCIUM CHLORIDE is a gastro-intestinal irritant, very diffusible and remarkably alterative, being apparently a powerful antagonist to the strumous diathesis.

[The actions of the other salts of Calcium are described under the titles of their respective bases.]

Antagonists and Incompatibles.

The preparations of Lime and Chalk are incompatible with acids and metallic salts. In poisoning by Lime the antidote is a dilute vegetable acid, followed by demulcents or the fixed oils to protect the mucous membrane.

THERAPEUTICS.

LIME may be used as a caustic and depilatory, but is better known as an agent for hastening decomposition which it does by its affinity for water, the resulting Hydrate absorbing many of the products. CHLORINATED LIME is an excellent antiseptic and disinfectant, but as it owes its energy entirely to its chlorine it will be noted under that title. LIME-WATER is a favorite remedy for vomiting, especially in children, and is added to milk to increase its digestibility. It is also efficient for acid dyspepsia and mucous enteritis, as an antacid and astringent. Locally it is usefully employed as an enema against thread-worms, as a lotion in many mucous and purulent discharges, and in aphthæ. The vapor of slaking lime or lime-water as spray are often very serviceable inhalations in diphtheria. Syrup of Lime contains more lime in solution than lime-water, and may be used instead of the latter where a diluent is not advisable. It is the antidote for poisoning by Carbolic or Oxalic Acid, while lime in any form (as wall-plaster) is a valuable antidote for poisoning by any mineral acid.

Chalk-mixture is used in the diarrhœas of children with sour-smelling, watery stools; and may be conveniently prescribed in combination with other astringents. Lime Liniment is used on cotton or lint as a dressing for burns.

Calcium Chloride has been advantageously employed in the various manifestations of the strumous diathesis. It sometimes resolves glandular enlargements, calcifies tubercular deposits, aids the cicatrization of ulcerating cavities, and has been curative in eczema and lupus. It is strongly recommended in chorea, phthisis and in the colliquative diarrhœa of strumous children. In solution externally as a fomentation it will hasten the maturation of boils.

[The therapeutics of the other salts of Calcium are included under those of their respective bases.]

CALENDULA, Marigold,—is the fresh, flowering herb of *Calendula officinalis*, the common Garden Marigold, a plant of the nat. ord. Compositæ, frequently cultivated for ornament. The tincture (20 per cent.) is also official, and is exclusively used as a local application to promote the healing process in wounds, ulcers, burns and other breaches of tissue. Extravagant views of its powers as a vulnerary are promulgated by the so-called "homœopathic surgeons," and serve as one of their excuses for professing an exclusive position in the art of surgery.

CALUMBA, Columbo,—is the root of *Jateorrhiza Calumba*, a plant of the nat. ord. Menispermaceæ, native in southeastern Africa, but cultivated in the East Indian Islands. It occurs in nearly circular disks, having two or three interrupted circles of projecting wood-bundles, odor slight, taste mucilaginous, aromatic and bitter. It contains the alkaloid *Berberine* (see under Berberis, *ante*, page 130), a bitter principle named *Calumbin*, also Calumbic Acid and Starch, but no Tannin. Dose, gr. v–xxx.

Preparations.

Extractum Calumbæ Fluidum,—Dose, ♏v–xxx.
Tinctura Calumbæ,—1 in 10. Dose, ʒss–ij.

Calumba is the first in alphabetical order of the simple bitters, having no astringency or aroma, and its action, as herein described, will apply to the other members of that class (Quassia, Gentian, Cornus). It stimulates the nerves of taste, increases the flow of saliva, excites the flow of the gastric juice and the gastric circulation, thus increasing the appetite and promoting digestion, and so promoting the constructive metamorphosis. As it also increases the gastric mucus, its continued use will set up catarrh of the stomach, and interfere with digestion, though it is one of the least irritant of stomachic tonics.

THERAPEUTICS.

As Calumba contains no Tannin, it may be administered with the salts of Iron, and is often prescribed with the sub-carbonate. It is useful in atonic dyspepsia with pain after eating, in the convalescent stage of disease to promote appetite and digestion, in diarrhœa and dysentery, vomiting, sea-sickness, cholera morbus and cholera infantum. An Infusion of Calumba with Ginger and Senna is effective in flatulence, and the same preparation is a good vehicle for the administration of acids and alkalies, tonics, aromatics and mild cathartics. Having little or no irritant quality, it is an excellent tonic in the hectic of phthisis.

CAMBOGIA, Gamboge,—is a gum-resin, obtained from *Garcinia Hanburii*, a Siamese tree of the nat. ord. Guttiferæ. It occurs in cylindrical pieces, of orange-red color, but yellow when powdered. Its taste is very acrid. It contains 73 per cent. of *Gambogic Acid*, a resinous substance, also 25 per cent. of gum and 2 of water. It is partly soluble in alcohol and ether. The only official preparation is the Pil. Catharticæ Co. (described under COLOCYNTHIS), each pill containing gr. ¼ of Gamboge. Its dose, as a cathartic, is gr. ij–v,—as a diuretic, gr. j at short intervals.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Gamboge is an irritant purgative, decidedly diuretic, and its powder is sternutatory. Its catharsis is accompanied by vomiting and colic, and the stools produced are watery, but not so much so as generally believed. It has no cholagogue action. Full doses are liable to produce violent gastro-enteritis, and incautiously used (as in Morrison's pills) it has frequently caused death. On the other hand, large doses have been given continuously in some cases, without producing any dangerous symptoms.

Gamboge was formerly much used as a hydragogue cathartic and diuretic in dropsies, but its irritant qualities have caused it to be superseded by other agents (elaterium, digitalis, etc.). However, for dysentery, especially when in young subjects, very small doses (gr. $\frac{1}{10}$) at short intervals, up to gr. ¾ in 24 hours, have proven to be remarkably efficacious.

CAMPHORA, Camphor, $C_{10}H_{16}O$,—is a stearopten (solid volatile oil), derived from *Cinnamomum Camphora*, a tree of the nat. ord. Lauraceæ, and purified by sublimation. Occurs in white, translucent, waxy masses, of penetrating odor and pungent taste, lighter than water, in which it is sparingly soluble (1 to 1300), but dissolves readily in alcohol, ether, chloroform, benzin, oils, etc. The camphor-tree is indigenous in China, Japan, Formosa and other parts of eastern Asia. Borneo Camphor has the formula $C_{10}H_{18}O$, bears the same relation to Japanese Camphor as alcohol bears to aldehyde, and is heavier than water. Dose, gr. j–xx.

DERIVATIVES of Camphor are—*Camphor-cymol*, which is obtained by its distillation with zinc chloride,—*Camphoric and Camphretic Acids*, which result respectively from its lesser or greater oxidation.

Preparations.

Aqua Camphoræ, Camphor-water,—Camphor 8, Alcohol 16, Distilled Water q. s. ad 1000 parts. Used externally or as a vehicle. Dose, ʒj–iv.

Spiritus Camphoræ, Spirit of Camphor,—Camphor 10, Alcohol 70, Water 20 parts. Dose, ♏v–xx.

Linimentum Camphoræ, Camphor Liniment,—Camphor 20, Cotton-seed Oil 80 parts. For external use.

Ceratum Camphoræ, Camphor Cerate,—has of the Liniment 3, Olive Oil 12, Cerate 85 parts. Used for itching skin-affections.

Camphora Monobromata, Monobromated Camphor, $C_{10}H_{15}BrO$,—colorless, prismatic needles or scales, of mild camphoraceous odor and taste, and neutral reaction, almost insoluble in water, slightly in glycerin, freely in alcohol, ether, oils, etc. Dose, gr. j–x, in emulsion.

Rubini's Tincture of Camphor (Unofficial),—is a saturated solution in alcohol, ℥j in ℥j ¼, of which the dose is from 4 to 10 drops. ♏vij have caused toxic symptoms in an adult.

Raspail's "Eau Sedative" (Unofficial),—contains Aq. Ammoniæ ℥ij, Sodii Chloridum ℥ij, Camphorated Spirits of Wine ʒiij, Water Oij. Used externally.

Camphor is also an ingredient of Linimentum Saponis, Linimentum Sinapis Compositum, and Tinctura Opii Camphorata.

PHYSIOLOGICAL ACTION.

Camphor is antispasmodic, anodyne, antiseptic, diaphoretic, a stimulant expectorant, a cerebral excitant, a gastro-intestinal irritant, and a rubefacient. It has an acrid, hot taste, and irritates the skin and mucous membranes, in quantity exciting severe gastric inflammation with all the effects of an irritant poison. In medicinal doses, it stimulates the vaso-motor system and the cardiac motor ganglia, and lessens the influence of the pneumogastric,—thus increasing the circulation and raising arterial tension. It also stimulates respiration and mental activity, even producing intoxication; promotes diaphoresis, allays pain, and increases the menstrual flow and the sexual appetite, but its continued use depresses the generative function. "Camphora per nares castrat odore mares."

Large doses cause gastro-intestinal inflammation, depress the heart and lower arterial tension, diminish the reflex function of the spinal cord, produce coldness of the surface, insensibility, coma, convulsions and perhaps death.

As many as 200 grains have been taken without fatal result, yet 6 or 7 grains have produced extreme drowsiness and weakness of the pulse, and 20 grains laid an Alpine guide up for a day.

It is eliminated by the bronchial mucous membrane, skin and kidneys, and has often caused dysuria.

Monobromated Camphor resembles the bromides in action, but is not identical therewith. In mammals it produces muscular weakness passing into paralysis, lowered temperature and respiration, stupor and death. In some cases its use by man has been followed by epileptiform convulsions. It is a nervous sedative and hypnotic, and a gastric irritant.

Antagonists and Incompatibles.

Arterial sedatives, coffee, cold, etc., antagonize its action. Water precipitates it from the alcoholic solution, alkalies and earthy salts precipitate even the small quantity which is soluble in water. Emetics to remove as much as possible. Opium and Bromides for the convulsions.

Therapeutics.

Camphor was much used by the older physicians as an antispasmodic, and is yet greatly valued in China and Japan. It has a reputation for uncertainty of therapeutic action, but is usefully administered in cholera and choleraic diarrhœa, summer diarrhœa and that of infants, vomiting, gastralgia, cardiac depression, nervousness and nervous headache, nymphomania, capillary bronchitis, typhoid and eruptive fevers, dysmenorrhœa, afterpains, chordee, strangury, and catarrhal colds. Locally it is effective in myalgia, lumbago, toothache, gangrene, and other conditions where counter-irritation or a local anodyne are required. A solution in ether has been found to be a beneficial application in erysipelas.

Monobromated Camphor is used as a nerve sedative and hypnotic, but is not particularly efficient in this regard. It has been used with advantage in whooping-cough, neuralgia, chorea, hysteria, delirium tremens and epilepsy.

Camphora Carbolata is a name given to a mixture of 2½ parts of camphor with one each of carbolic acid and alcohol. This preparation, mixed with olive-oil, is a good non-irritating and antiseptic dressing for wounds and breaches of surface.

Camphor-Chloral is a fluid obtained by triturating together equal parts of camphor and chloral hydrate. It has decided solvent powers, dissolving sulphate of morphine readily (gr. xx in ℥ij), and many other salts of alkaloids. It is often a serviceable application in superficial neuralgia, and is said to allay spasmodic cough if painted over the larynx.

Camphora Salicylata is obtained by heating together 11 parts of salicylic acid and 14 of camphor. An ointment prepared from this substance has been used with very satisfactory results in the treatment of phagedena, spreading syphilitic sores, epithelioma, lupus, etc.

CANNABIS, Hemp,—is *Cannabis sativa,* the hemp-plant, a coarse, pubescent, somewhat viscid annual of the nat. ord. Urticaceæ, having an erect, branching stem 3 to 6 feet high, with alternate or opposite digitate leaves on long, weak petioles; and diœcious flowers, the staminate clusters being lax, drooping, leafless at the base; the pistillate clusters erect and leafy at the base. It is indigenous to Asia, but is cultivated in most civilized countries for its textile bast-fibres and its oily fruit. The two official varieties are specifically identical with each other, differing only in the degree of their action, that grown in India being the most powerful. They contain a resin named *Cannabin,* and a *Volatile Oil,* from the latter of which are obtained *Cannabene,* a light hydrocarbon, and *Hydride of Cannabene,* a crystalline body. Cannabis should not be confounded with the so-called "Indian or Canadian Hemp," APOCYNUM CANNABINUM (see *ante,* page 107). The official varieties of Cannabis are as follows:—

CANNABIS AMERICANA, American Cannabis,—is *Cannabis sativa,* grown in the Southern United States and collected while flowering, having a stem about six feet long and rough, leaves petiolate and digitate, opposite below, alternate above, flowers diœcious, odor heavy, taste bitter and slightly acrid. No official preparations.

CANNABIS INDICA, Indian Cannabis, Indian Hemp,—the flowering tops of the female plant of *Cannabis sativa,* grown in the East Indies. Is about two inches long, branching, compressed and brittle, having a few digitate leaves with linear-lanceolate leaflets, and numerous bracts, each containing two small pistillate flowers, sometimes with the nearly ripe fruit, the whole agglutinated with a resinous exudation. Color brownish, odor peculiar and narcotic, taste slightly acrid.

Preparations.

Extractum Cannabis Indicæ,—Dose, gr. ⅙–j, if active.

Extractum Cannabis Indicæ Fluidum,—an alcoholic preparation which in mixtures must be emulsified with Gum Acacia, otherwise the resin will separate and float to the top or adhere to the sides of the bottle. Dose, ♏j–v, but the author has frequently taken ʒj of a good fluid extract without experiencing untoward effects.

Tinctura Cannabis Indicæ,—strength 20 per cent. Dose, ♏xx–ʒj. The above remark on mixtures containing the fluid extract applies also to the tincture.

Similar preparations of *Cannabis Americana* are prepared by the manufacturers and may be used in larger quantities. The dosage of all preparations of hemp is uncertain, as specimens of the plant vary very much in activity. The best rule is to begin with a small dose, gradually testing the activity of the drug and the susceptibility of the patient by carefully increased doses.

Cannabin Tannate (Unofficial),—is a yellowish-brown permanent powder, insoluble in water and ether, slightly soluble in alcohol, having a not unpleasant odor and a bitterish, astringent taste. No formula has been published for it, but it is claimed to be the tannate of a glucoside by Merck of Darmstadt, who placed it on the market. Dose, as a hypnotic gr. v–x.

Preparations used in the East.

Churrus is an impure resin, prepared by rubbing the leaves of the plant together and scraping off the adhering resin.

Gunjah is the dried leaf and tops as sold in the bazaars for smoking purposes.

Hashish, *Bhang* or *Siddhi* is a confection consisting of the leaves and small stalks coarsely broken and mixed with fruits and aromatics. It is employed in the preparation of various electuaries and beverages, and is also smoked with or without tobacco.

PHYSIOLOGICAL ACTION.

CANNABIS is an antispasmodic, analgesic, anæsthetic and narcotic, a cerebro-spinal stimulant and a powerful aphrodisiac. It increases intellectual and motor activity, stimulates the vaso-motor nerves raising arterial tension, depresses sensation, and strengthens the energy of the uterine muscular fibre, but has no power to initiate uterine contractions. In large doses it causes a pleasurable intoxication during which the peculiar traits of the individual are exalted, and the ideas follow each other so rapidly as to produce a sense of great prolongation of time, minutes seeming as if hours or even days. With this occurs increased sexual desire, great uterine activity, and sensations of double consciousness and enormous dimensions. The sight and hearing are exalted, pupils dilated, anæsthesia sets in, the reflexes are lowered by stimulation of inhibition (Setchenow's centre?), and if the dose be a heavy one a cataleptic state is induced. Sleep or coma follows according to the size of the dose, but death has never been produced by this drug.

After-effects are dullness, heaviness, vertigo, headache, and confused thought, anæsthesia of the skin, and marked diuresis,—but no nausea, no vital depression, no constipation. Repeated use of the drug causes mental weakness and impotence, the result of over-stimulation. A ravenous appetite is usually one of its effects.

Antagonists and Incompatibles.

Strychnine and faradism are antagonistic. Caustic alkalies are incompatible. In poisoning by it the stomach should be evacuated, stimulants given cautiously, and respiration maintained. The effects of a large dose last over 24 hours. Lemon-juice is said to antagonize its effects.

THERAPEUTICS.

CANNABIS was formerly much employed as an anodyne and hypnotic, also as an anæsthetic during surgical operations. It is now somewhat out of fashion. In migraine it is useful to prevent recurrence of the attack, and in neuralgia it is often very efficient. Uterine affections, as—chronic metritis, subinvolution, menorrhagia, dysmenorrhœa, etc., are greatly benefited by its anodyne quality and its power over the uterine muscular fibre. It is the best hypnotic in delirium tremens, and in traumatic tetanus and paralysis agitans large doses will lower the reflex activity. Dysuria and retention of urine are often relieved by it, while in spasm of the bladder and other painful affections of that organ it will be found a most efficient remedy. It is useful in functional impotence, especially if combined with Ergot and Nux-vomica. In gonorrhœa it lessens the discharge, relieves the inflammation, burning pain and restlessness, and allays chordee. The tincture of C. Americana is the most useful in this affection, being fully as efficient as Copaiba or Sandal Oil, and much more agreeable. It should, however, be prepared from the fresh plant, and be given in 3 to 5 drops doses 3 or 4 times daily after the subsidence of the acute symptoms. Full doses of the tincture of the Indian plant are extremely efficient in many cases of headache at the menopause, but should be used cautiously until the activity of the sample and the susceptibility of the patient are tested.

TANNATE OF CANNABIN is recommended as a powerful hypnotic, not in any degree dangerous and neither disturbing the secretions nor leaving unpleasant after-effects. It has been used with benefit in acute mania.

CANTHARIS, Cantharides, Spanish Flies,—is the dried beetle *Cantharis vesicatoria*, an insect of the nat. ord. Coleoptera, about an inch long, of a shining green color, the powder being grayish-brown, with green particles, odor very disagreeable. Contains *Cantharidin*, $C_{10}H_{12}O_4$, the active principle,—also a greenish volatile oil and peculiar fatty bodies.

Preparations.

Tinctura Cantharidis,—strength 5 per cent. Dose, ♏ j–xx.

Ceratum Cantharidis, Cantharides Cerate, Blistering Cerate,—Cantharides 35, Yellow Wax 20, Resin 20, Lard 25 parts.

Ceratum Extracti Cantharidis,—Cantharides 30, Resin 15, Yellow Wax 35 parts, Lard 35 parts, Alcohol q. s.

Charta Cantharidis,—Cantharides 1, Canada Turpentine 1, Olive Oil 4, Spermaceti 3, White Wax 8, Water 10 parts—spread on paper.

Linimentum Cantharidis,—Cantharides 15, Oil of Turpentine q. s. ad 100.

Emplastrum Picis cum Cantharide, Pitch Plaster with Cantharides, Warming Plaster,—Burgundy Pitch 92 parts, Ceratum Cantharidis 8 parts.

Collodium cum Cantharide, Cantharidal Collodion,—Cantharides 60, Flexible Collodion 85, Commercial Chloroform q. s.

PHYSIOLOGICAL ACTION.

Cantharis applied to the skin is a rubefacient and vesicant, acting more slowly than mustard but much more severely. Internally it is also irritant, causing heat of stomach, gastralgia, nausea, and vomiting, the circulation is stimulated, temperature elevated, urine becomes scanty and irritating, is voided with difficulty and pain, and often contains blood and albumen. Afterwards the pulse falls, temperature and arterial tension are lowered, and depression ensues. A toxic dose produces severe gastro-enteritis, abdominal tenderness, tenesmus, mucous or bloody stools, pain in the stomach and loins, dysphagia, ptyalism, strangury, priapism, hematuria, swollen genitals, abortion, muscular tremor, convulsions, coma and insensibility. Post-mortem shows evidences of violent metritis, gastro-enteritis and general peritonitis. Cantharis is aphrodisiac by causing vascular turgescence of the genital apparatus, but only in doses which produce dangerous symptoms. It is only abortive in toxic dose. In small doses it is diuretic and emmenagogue.

Counter-irritation by rubefacients or blisters acts on disease probably through the nervous system. Its influence is explained by the theory that the peripheral extremities of the nerves supplying the skin of the part to which the agent is applied undergo some molecular change, which extends to the nerve centre and is thence radiated to centrifugal or trophic nerves, effecting various changes in nutrition and secretion over the areas to which they are distributed. In addition to this method of action, neighboring parts are affected by direct extension of the inflammation produced, and distant parts are also affected by absorption through the vesicated surface of agents having special affinities for certain organs.

Blisters act primarily as a stimulant to the body generally as well as to the organs in its vicinity, but if permitted to remain long enough to produce large blebs, the result is a depression proportionate to the amount of serum abstracted, the serum containing nearly as much albumen as the blood itself.

Antagonists.

There is no chemical or physiological antagonist to Cantharis. Evacuation of the stomach, mucilaginous drinks freely, Opium for the gastro-enteritis, are the best measures in poisoning by this agent.

THERAPEUTICS.

As a counter-irritant and vesicant Cantharis is of great value in neuralgia if applied close to the emergence of the nerve from the spinal column, also in sciatica and neuritis, and in acute rheumatism around the affected joints. A blister at the nape of the neck controls many headaches, and one behind the ear will modify inflammatory affections of the eye. In pleuritic effusions a succession of small blisters (flying-blisters) will promote absorption of the pleural contents, and a blister applied to the perineum will often cure a rebellious gleet. Though valuable as a therapeutic measure in very many conditions, blistering is going out of fashion except in hospitals and among people who believe in heroic treatment.

As an internal remedy Cantharis must be employed in very small doses (♏j–iij of the tincture) in order to be efficient. When so used it is an admirable agent in acute desquamative nephritis after the active inflammation and fever have subsided, to reduce the albumen and blood in the urine. Drop-doses are particularly useful in irritable bladder with frequent desire to micturate, so often observed in women, also in the incontinence of the aged and of children, and in cystitis, gonorrhœa and gleet. The same dose thrice daily will generally abate chordee. In spermatorrhœa, prostatorrhœa, scanty menstruation and menorrhagia in subjects of lax fibre and general want of tone it is often very serviceable. Cutaneous squamæ and vesiculæ are greatly improved by small doses frequently administered and gradually increased, and it is one of the best remedies for psoriasis. For alopecia areata it is of the utmost value as an external application, and the tincture, greatly diluted, is an ingredient of all the hair-renewers in common use. In pleurisy, after effusion has taken place, it will be found admirable in 1 to 2 drop doses every 2 or 3 hours, and in the after prostration of diphtheria it proves a serviceable stimulant. One of the best applications to burns or scalds is a cloth dipped in a lotion of the tincture one part to thirty or forty of water. The same lotion is an efficient application to vesicular erysipelas and herpes zoster.

CAPSICUM, Cayenne Pepper,—is the fruit of *Capsicum fastigiatum*, a plant of the nat. ord. Solanaceæ native in tropical Africa and America. Occurs in small red pods, enclosing two cells containing flat, yellowish seed, and has a peculiar odor and an intensely hot taste. It contains *Capsicin*, which is a thick, red liquid, and is the active principle, —also a volatile alkaloid having the odor of Conine. Dose of the powdered drug, gr. v–x.

Preparations.

Extractum Capsici Fluidum,—alcoholic. Dose, ♏v–℥j.
Tinctura Capsici,—5 per cent. strength. Dose, ♏x–℥j.
Oleoresina Capsici, prepared by ether. Dose, ♏j–v.
Emplastrum Capsici, Capsicum Plaster,—prepared from the oleoresin of capsicum and resin plaster.

PHYSIOLOGICAL ACTION.

Capsicum is irritant to the skin and mucous membranes. Externally used for sufficient length of time it will produce vesication, internally in quantity it will excite gastritis. In medicinal doses it increases the saliva, excites a sensation of warmth in the stomach, promotes appetite and digestion, and produces more easy and copious alvine evacuations. It stimulates the action of the heart, is diaphoretic and diuretic, also decidedly aphrodisiac. It is a general stimulant to the nervous system, but in repeated doses produces a slight narcotic effect upon the brain. On the vascular system it acts like ergot, powerfully constringing the vessels by influencing the unstriped muscular fibre in their walls, either directly or through the vaso-motor nerves.

THERAPEUTICS.

Capsicum is an excellent stomachic tonic in atonic dyspepsia and in that of chronic alcoholism with tremor and insomnia. In acute dipsomania and delirium tremens large doses are efficient in producing sleep and promoting appetite. It is the best substitute for alcohol and opium in attempts to cure those habits. It is well used in intermittents, chiefly as an adjuvant to more active drugs,—in flatulent colic especially when occurring in hysterical women and hypochondriacs,—also in low fevers and cholera as a stimulant. It gives good results in functional impotence, in spermatorrhœa from loss of tone, in chronic parenchymatous nephritis to check the waste of albumen, and is beneficial in chronic cystitis and in prostatorrhœa. The tincture internally and a plaster externally over the loins are efficient in cases of renal congestion with habitual pain in the back and a trace of albumen in the urine.

Locally the tincture diluted (ʒj to ℥viij) or the powder with honey, form excellent gargles for relaxed throat and its accompanying cough, relaxed uvula, inflammatory sore throat, and the cynanche of scarlet fever, but they must be used with caution as such applications are sometimes very irritating.

The Capsicum-plaster is a mild counter-irritant, of great value in lumbago and other muscular rheumatisms as a palliative application.

CARBO, Carbon,—exists in nature in many forms, of which two are official, namely, the charcoals specified below.

CARBO ANIMALIS, Animal Charcoal,—prepared from bone, occurring in dull black fragments or powder, odorless and nearly tasteless, insoluble in water or alcohol.

CARBO LIGNI, Charcoal,—prepared from soft wood, is black, shining, brittle, inodorous, tasteless and insoluble.

Preparations.

Carbo Animalis Purificatus, Purified Animal Charcoal,—the bone-phosphate and calcium carbonate being removed by digesting with Hydrochloric acid and washing. Dose, gr. xx–ʒj.

Carbonei-Bi-sulphidum, Bisulphide of Carbon, CS_2,—is a clear, colorless, diffusive liquid, of strong, offensive odor, aromatic taste and neutral reaction; soluble in alcohol, ether, chloroform and oils, insoluble in water; vaporizes at ordinary temperatures, and is highly inflammable. Dose, ♏ss–j.

PHYSIOLOGICAL ACTION.

CHARCOAL is an efficient deodorant and disinfectant, as it absorbs and condenses many gaseous bodies and vapors. It is evacuated unchanged by the bowel and exerts no specific action on the body.

CARBON BISULPHIDE is largely used in the arts, hence its effects are frequently observed. Persons exposed to its fumes are affected by headache, vertigo, over-excitement of the nervous system, emaciation, incoördination of movement, depression of all the special senses with impairment of sensation and motility and perhaps insanity. Inhaled directly, it excites violent coughing and produces anæsthesia characterized by great muscular rigidity. Being a powerful cardiac paralyzant, it is extremely dangerous as an anæsthetic. In 3-drop doses, it produces severe nausea and vomiting, with a sense of heat in the stomach and a weak and rapid action of the heart. It is a good solvent for Caoutchouc and many other substances.

THERAPEUTICS.

CHARCOAL is used in pharmacy for decolorizing vegetable principles, removing alkaloids from infusions of plants, and making several preparations, as acidum sulphurosum, potassii iodidum, etc.

Externally, it makes an efficient disinfectant, absorbent and deodorant application to cancerous discharges, foul ulcers and gangrenous wounds. Having no odor it is not open to the charge of substitution of one smell for another. A small quantity added to water will keep it sweet for a long time. It is an excellent dentifrice if finely powdered.

Internally, it is used for the same purposes, namely, to absorb gases and offending products of indigestion. In flatulent dyspepsia, gastralgia, pyrosis, diarrhœas, nausea of pregnancy, epidemic cholera, and constipation, it has warm advocates. When used internally for any time, an occasional purgative should be given to prevent its accumulation in the intestines. It has been proposed as an antidote for several alkaloidal poisons on theoretical grounds, but its efficacy in this respect is doubtful.

CARBON BISULPHIDE has such a horribly offensive odor that it will never be used for any purpose for which another agent can be found. It relieves the pain of gastric cancer, and in ½-drop doses will alleviate nausea and vomiting, also gastralgia. Locally it has been used as a counter-irritant and a local anæsthetic, for deafness due to want of nervous energy, in facial neuralgia and various local pains.

CARDAMOMUM, Cardamom,—is the fruit of *Elettaria Cardamomum*, a plant of the nat. ord. Zingiberaceæ, cultivated in Malabar. Occurs as dried capsules, containing small, reddish-brown seeds, of warm, aromatic taste and agreeable odor. Contains about 4½ per cent. of a *Volatile Oil*, $C_{10}H_{16}$, isomeric with Oil of Turpentine, which oil is the active principle, also a fixed oil, coloring matter, etc. It is an ingredient of Pulvis Aromaticus and of Extractum Aromaticum Fluidum (see under CINNAMOMUM), as well as of several compound preparations.

Preparations.

Tinctura Cardamomi,—15 per cent. strength. Dose, ʒj–ij.

Tinctura Cardamomi Composita,—Cardamom 20, Cinnamon 20, Caraway 10, Cochineal 5, Glycerin, 60, Diluted Alcohol q. s. ad. 1000. Dose, ʒi–ij.

Infusum Cardamomi (Unofficial),—may be made in the strength of ʒj to O½, and used in wineglassful doses.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Cardamom is aromatic, carminative and stomachic, and is used as an agreeable flavoring for bitter mixtures in dyspepsia and other stomach affections. It is especially useful when combined with purgatives to check flatulence and griping, and it makes the best flavoring for saline solutions or mineral waters.

CARDUUS (Unofficial),—the seeds of *Carduus marianus*, or St. Mary's thistle, an annual European plant of the nat. ord. Compositæ. A decoction (℥ij ad Oj) is the preparation usually employed. It is an old remedy recently revived as a hemostatic, and reported as very efficient in hemoptysis, uterine hemorrhage, melæna and amenorrhœa connected with derangement of the portal circulation. It has proved curative in congestion of the liver and simple jaundice, and in Germany it has long been popularly deemed efficacious in gall-stones, and liver affections generally. Dose of the decoction, ʒj–℥ss,—of a tincture, ♏x–xx.

CARDUUS BENEDICTUS, the "blessed thistle," also called *Cnicus benedictus* and *Centaurea benedicta*, is another plant of the same order, formerly held in high esteem as a popular "cure-all." It contains *Cnicin*, an amorphous bitter principle, which has been used as an antiperiodic in doses of gr. v–x, but generally produces burning sensations and pharyngeal constriction, with nausea, vomiting, colic and diarrhœa. It acts chiefly as a bitter tonic, resembling Calumba and Taraxacum most closely.

CARUM, Caraway,—is the fruit of *Carum Carvi*, a European plant, of the nat. ord. Umbelliferæ, and is of oblong shape, ⅙th of an inch in length, separating into two parts, each having 5 ribs and 6 oil-tubes. Its odor and taste are aromatic and agreeable. The active principle is the *Volatile Oil*, which is also official. Caraway is an ingredient of Tinct. Cardamomi Composita.

Preparations.

Oleum Cari,—is the volatile oil distilled from Caraway, and is resolvable into *Caruen*, $C_{10}H_{16}$, isomeric with Turpentine, and *Caruol*, $C_{10}H_{11}O$, isomeric with Thymol. It is an ingredient of Spiritus Juniperi Compositus. Dose, ♏j–v.

Infusum Curi (Unofficial),—ʒj–ij ad Oss. Dose, ℥ss–ij.

The Oil of Caraway is fatal to small animals, and in one case ʒj produced cerebral congestion, delirium and rigors in man. The chief use of Caraway is as a flavoring agent, but it is efficient in the flatulent colic of children, and to prevent griping from the use of purgatives.

CARYOPHYLLUS, Cloves,—are the unexpanded flowers of *Eugenia caryophyllata*, a handsome evergreen tree of the nat. ord. Myrtaceæ, cultivated in the East and West Indian Islands. They are about ½-inch long, of a dark-brown color, consist of a calyx-tube terminated by four teeth and surmounted by a globular head formed by four petals, which cover numerous curved stamens and one style. They emit oil when scratched, have an aromatic odor, and a pungent, spicy taste, and are contained in Tinctura Lavandulæ Composita, Tinctura Rhei Aromatica and Vinum Opii. They contain a heavy *Volatile Oil*, which is official,—also *Eugenin*, $C_{10}H_{12}O_2$, a crystalline body; *Caryophyllin*, $C_{10}H_{16}O$, a camphor; *Caryophyllic Acid*, and tannin, gum, etc.

Preparations.

Oleum Caryophylli, Oil of Cloves—a volatile oil distilled from Cloves, soluble in alcohol, and of sp. gr. 1.050. It consists of a light and a heavy oil, the latter containing *Eugenol*, $C_{10}H_{12}O$, a phenol-like compound. and *Caryophyllin*, $C_{10}H_{16}O$, which yields as a product of its oxidation *Caryophyllinic Acid*, $C_{20}H_{32}O_6$. Dose of the oil, ♏j–iv.

Infusum Caryophylli (Unofficial), may be made of strength 1 to 40, and used in doses of one to two fluid ounces.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Cloves may be considered as a type of several agents yielding aromatic oils, which as a rule consist of terpenes with camphors, resins, fatty and other acids, etc., closely allied to phenol and benzoic acid, the balsams and gum-resins. Such are Orange, Lemon, Allspice, Cajuput, Caraway, Peppermint, etc. Their oils are antiseptic, locally anæsthetic, stimulant and irritant, antispasmodic, stomachic and carminative. Internally they increase circulation and temperature, promote digestion and nutrition (in quantity may cause inflammation), relieve pain and spasm, and are excreted by the kidneys, skin, liver and the bronchial mucous membrane, stimulating and disinfecting their routes through the organism.

These agents are used to flavor pharmaceutical preparations, to correct the griping tendency of many purgatives, to correct flatulence, to relieve pains in the stomach and bowels, and to promote the flow of saliva and gastric juice. As external applications they are efficiently employed for anæsthetic and counter-irritant purposes, to relieve pain in chronic rheumatism, myalgia, lumbago, superficial neuralgia, toothache, etc. The Oil of Cloves is an effective deodorizer for sponge-tents, a good application to a painful tooth, and is occasionally applied over the course of an aching nerve with relief to the pain.

CASCA BARK, Sassy Bark, Ordeal Bark (Unofficial),—is the bark of *Erythrophlœum Guinense*, an African tree used by the negroes as an ordeal in trials for witchcraft. It contains a poisonous alkaloid, *Erythrophleine*, and when used in quantity produces nausea and vomiting, stricture across the brow, severe cephalalgia, narcosis and death. It is used as a remedy in Africa for intermittent fever, dysentery, diarrhœa and colic, and in England is considered to resemble Digitalis in action and uses. A tincture is made (℥ij ad Oj) of which the dose is ♏x, or a watery Extract may be used in doses of gr. j.

Erythrophlœin, the active principle, is a glucoside, and is said to be a local anæsthetic of extraordinary power, even surpassing Cocaine. It is found in Africa in a red mass, called "Hayah," which is proven to be identical with an extract of the original plant described by Œrtel early in this century, and deposited by him in the Berlin museum. It closely resembles Digitalis in action, being a cardiac tonic and a hydragogue diuretic.

CASCARA AMARGA, Honduras Bark (Unofficial),—is the bark of a Mexican tree of the nat. ord. Simarubaceæ, which has been used with apparent success as an alterative tonic and diuretic in syphilis and various chronic skin affections. The use of tobacco and alcohol seems to counteract its usefulness. It is certainly a very powerful tonic and has been employed by competent observers with uniformly good results in syphilis and syphilodermata, chronic liver complaints, chronic eczema, chronic nasal catarrh and psoriasis. A Fluid Extract is on the market of which the dose is ʒss–j thrice daily.

CASCARA SAGRADA, Chittem Bark, Sacred Bark (Unofficial),—is the bark of *Rhamnus Purshiana*, or California Buckthorn, a small tree of the nat. ord. Rhamnaceæ growing on the Pacific coast of the United States. It contains a *Volatile Oil*, a neutral crystalline substance, several *Resins*, with tannic, malic and oxalic acids. A Fluid Extract is on the market, of which the dose is ʒss–j, two or three times a day. It has been found very serviceable in the treatment of chronic constipation, given in gradually diminished doses. It produces large, soft and painless evacuations, and the bowels are said to act naturally and regularly after its disuse.

Cascara Cordial is a trade preparation, intended as a remedy for constipation, dyspepsia and hemorrhoids, and as a pleasant excipient for nauseous and bitter drugs. A similar preparation may be made by combining the fluid extract with the official Elixir Aurantii in the proportion of ʒj to ℥ij, of which teaspoonful doses or more may be administered.

Another species of the same genus, *Rhamnus Frangula*, is official under the title Frangula, which see.

CASCARILLA,—is the bark of *Croton Eluteria*, a shrub or small tree of the nat. ord. Euphorbiaceæ, growing in the Bahamas. It occurs in grayish-brown quills, having a warm, bitter taste, and a fragrant odor when burned. Contains *Cascarillin* a crystalline principle, two resinoid extracts, aromatic volatile oils, with tannic acid, etc. There are no official preparations, but an Infusion (1 to 10) or a Tincture (1 to 10) may be prepared and given in doses of ʒj–℥j.

Physiological Action and Therapeutics.

Cascarilla is an aromatic bitter. It increases appetite and digestion, the mucous secretion, the flow of saliva and gastric juice, stimulates the intestinal secretions, and acts as a mild astringent by the influence of its tannin. Large doses produce nausea, vomiting and diarrhœa, and in medicinal doses continued it will set up gastric catarrh and consequently indigestion. It has slight antiperiodic powers.

It has been used with success in epidemic dysentery, flatulent dyspepsia, debility, chronic bronchitis, intermittents, and low nervous fevers. It is difficult to dispense, as the infusion decomposes quickly, and acids precipitate the resin from the tincture.

CASSIA FISTULA, Purging Cassia,—is the fruit of *Cassia Fistula*, a tree of the nat. ord. Leguminosæ, growing in tropical regions of Asia, Africa and America. It occurs in long, brown pods which are divided into numerous transverse cells, each containing a dark pulp in which is a glossy seed. No active principle has been isolated as yet. The pulp is the only valuable part of the drug. There are no official preparations, but it is one of the ingredients of Confectio Sennæ.

Cassia-pulp is laxative in doses of ʒj–ij, and purgative in larger quantities, producing nausea, flatulence and griping. It is rarely prescribed alone, owing to its tendency to cause colic and flatulence.

CASTANEA, Chestnut,—the leaves of *Castanea vesca*, a stately tree of the nat. ord. Cupuliferæ, and should be collected while green. Chestnut leaves are 5 to 10 inches long and about 2 broad, have a slight odor and somewhat of an astringent taste. They contain tannic and gallic acids, salts, gum, etc.

Preparation.

Extractum Castaneæ Fluidum,—Dose, ʒss–ʒij.

This drug has not been studied as to its physiological actions, if it has any. It is classed among the vegetable astringents by reason of its containing tannin. Its only reputation therapeutically is as a remedy for whooping-cough, in which it is said to be very efficacious. An infusion or decoction of the leaves has been used in indefinite doses.

CATECHU,—is an extract prepared from the wood of *Acacia Catechu*, a tree of the nat. ord. Leguminosæ, native of the East Indies. Occurs in irregular masses, dark brown and brittle, nearly inodorous, but of astringent and sweetish taste, soluble in alcohol, and partly so in water. It contains *Catechutannic Acid* 50 per cent., and *Catechuic Acid* which is converted into the former by heat. Dose, gr. j–ʒss.

Preparations.

Tinctura Catechu Composita,—contains Catechu 12, Cinnamon 8, Diluted Alcohol q. s. ad 100 parts. Dose, ♏x–ʒj.

Trochisci Catechu,—each troche contains of Catechu 1 grain, mixed with Sugar, Tragacanth and Orange-flower water.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Catechu is a powerful astringent, acting by virtue of its tannic acid, (See *ante*, page 74, for actions and incompatibles.) Its uses depend entirely on its astringency. In the diarrhœa of children the Tincture with Chalk-mixture is very serviceable, and with Opium it is efficient in dysentery. It is also used as a gargle and mouth-wash in relaxed conditions of the pharyngeal mucous membrane, as an injection in leucorrhœa, and to control passive hemorrhages, spongy gums, etc.

CAULOPHYLLUM, Blue Cohosh,—is the rhizome and rootlets of *Caulophyllum thalictroides*, a plant of the nat. ord. Berberidaceæ growing in Canada and the northern United States. Rhizome about 4 inches long, thick and bent, rootlets numerous and matted, taste sweetish, bitter and acrid. Contains *Saponin* a glucoside, and two resins. Dose, gr. v–xx. There are no official preparations. The eclectic preparation *Caulophyllin* is a resinous precipitate obtained by pouring an alcoholic extract into water.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Caulophyllum is a new addition to the pharmacopœia, and has not yet been made the subject of experimental work by reliable observers. It was much used by the aborigines of this country in all affections to which their women were peculiarly subject, and was known among them by the name "squaw-root." It is said to produce intermittent contractions of the gravid uterus, to have diuretic, emmenagogue and antispasmodic powers; and is used as a remedy for deficient labor-pains, spasmodic after-pains, spasmodic pains in the uterus at any time, spasmodic dysmenorrhœa, and pains in other organs seemingly in sympathy with uterine affections. It has somewhat of a reputation in acute rheumatism of the hands and fingers, and as a preparative medicine for labor.

CERA, Wax,—is a mixture of *Myricin*, *Cerotic Acid* and *Cerolein*, is formed by the honey-bee, and exists in the pollen and leaves of many plants, particularly in *Myrica cerifera*, the wax myrtle. That produced by the bee is alone official.

CERA ALBA, White Wax,—is yellow wax bleached.

CERA FLAVA, Yellow Wax,—is a peculiar concrete substance prepared by *Apis mellifica*, the honey-bee. It is a yellowish solid, of agreeable odor and faint, balsamic taste, melting at 145.4° to 147° F., of sp. gr. 0.955–0.967, insoluble in water and almost so in cold alcohol, but soluble in 35 of ether, 11 of chloroform, boiling alcohol, fixed and volatile oils.

Preparations.

Ceratum, Cerate,—consists of White Wax 30, Lard 70.

Unguentum, Ointment, consists of Yellow Wax 20, Lard 80.

Wax is also a constituent of the 7 compound Cerates, 5 of the 25 compound Ointments, and 8 of the 17 Plasters.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

WAX owes its value to its power of resistance to decomposition and to many chemical agents. Its fusibility at a moderate degree of heat, and its solidity at the temperature of the body, together with its unirritating quality, make it a valuable ingredient of the cerates and ointments to give them consistence.

CERATUM and UNGUENTUM may be used as simple protective applications. They form the bases of most of the compound preparations so named.

CERII OXALAS, Oxalate of Cerium, $Ce_2(C_2O_4)_3.9H_2O$,—is a white, slightly granular powder, odorless and tasteless, insoluble in water or alcohol, but soluble in hydrochloric acid. Dose, gr. j–x, in pill.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Oxalate of Cerium is a gastric sedative (like Bismuth), and is thought to have selective action as a sedative to the motor distribution of the pneumogastric nerve. It is considered to be particularly useful in vomiting of reflex origin, especially in the vomiting of pregnancy, but it often fails, probably because not given in sufficient doses. To be effective at least 4 or 5 grains should be given 3 times a day to adults, and no results promised until after it has been used several days. It is also recommended in the vomiting of phthisis and bronchitis, cough with vomiting, gastralgia, chorea and diarrhœa.

CETACEUM, Spermaceti,—is a peculiar, concrete, fatty substance obtained from *Physeter macrocephalus*, the sperm whale. Occurs in white, pearly masses, odorless, of bland taste, and neutral reaction, becoming rancid in the air, soluble in ether, chloroform, carbon bisulphide and boiling alcohol. Is a constituent of Unguentum Aquæ Rosæ, and Charta Cantharidis.

Preparation.

Ceratum Cetacei, Spermaceti Cerate,—consists of Spermaceti 10, White Wax 35 Olive Oil 55 parts.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Spermaceti consists of Cetin or Palmitate of Cetyl with several other fats in small quantities. Its action is solely that of an emollient, and it is rarely used internally. The Cerate is used as a bland ointment in blisters, abrasions, and ulcers.

CETRARIA, Iceland Moss,—is the lichen *Cetraria islandica*, found in northern latitudes. Occurs about 2 to 4 inches long, brown above, whitish beneath, taste mucilaginous and bitter. Contains *Lichenin* or lichen starch, which forms as a jelly when the plant is boiled in water; —also *Cetraric Acid*.

Preparation.

Decoctum Cetrariæ,—5 per cent. strength. Dose, ℥ij–iv.

Physiological Action and Therapeutics.

Cetraria is nutrient, demulcent and feebly tonic. It has a popular reputation in pulmonary affections, and is of value in chronic catarrhs, chronic bronchitis, purulent discharges from mucous surfaces generally, also in chronic diarrhœa and dysentery.

CHAULMOOGRA OIL (Unofficial),—is a fixed oil expressed from the seeds of *Gynocardia odorata*, an East Indian tree of the nat. ord. Bixaceæ. It is nauseous and bulky, solid at 62.6° F., and soluble in alcohol, ether, chloroform, etc. Its active principle, *Gynocardic Acid*, is the best preparation for use, and may be given internally in doses of gr. ss–iij, or applied as an ointment, gr. xx ad ℥j of Petrolatum. Dose of the oil, gtt. v–x, in capsules.

Chaulmoogra Oil is credited with a few cures of leprosy, and several cases improved by its use both internally and externally. It is recommended as an external application in scaly eczema, psoriasis, syphilitic skin-diseases, chronic rheumatism, rheumatic arthritis and tabes mesenterica.

CHELIDONIUM, Celandine,—is the plant *Chelidonium majus*, nat. ord. Papaveraceæ, which grows in Europe and N. America about rocky places. It has a peculiar, unpleasant odor, and a pungent, acrid taste. Contains 2 alkaloids, *Chelidonine*, $C_{19}H_{17}N_3O_5$, and *Chelerythrine*, the latter being identical with Sanguinarine : also *Chelidoxanthin*, a yellow, crystalline substance, and *Chelidonic Acid*, supposed to be identical with Succinic Acid. Dose of the plant, gr. x–xxx,—of the fresh juice ♏v–xx. There are no official preparations.

Physiological Action and Therapeutics.

Chelidonium used externally is irritant, internally it is a drastic purgative but an unreliable one. It is also perhaps diuretic, diaphoretic and expectorant. In overdoses it is considered poisonous. It is an old remedy for jaundice and liver affections, but has been obsolete for some time. The fresh juice is a popular application for warts and corns, and a tincture in whiskey is used in Indiana as a remedy for phthisis, the menstruum being probably the most useful agent. It seems to be of real service in simple jaundice, whooping-cough, right-sided pneumonia with hepatic involvement, and the catarrhal pneumonia of children.

CHENOPODIUM, American Wormseed,—is the fruit of *Chenopodium ambrosioides*, var. *anthelminticum*, a plant of the nat. ord. Chenopodiaceæ, indigenous in the United States. It is about $\frac{1}{12}$ inch in diameter, and contains a glossy, black seed, has a peculiar, terebinthinate odor, and a pungent, bitter taste. Its active principle is a *Volatile Oil* which is official.

Preparation.

Oleum Chenopodii,—a thin, colorless or yellowish liquid, of aromatic odor and pungent, bitter taste. Dose, ♏v–xv.

Physiological Action and Therapeutics.

The Oil is the only preparation used and that rarely, its odor and taste being very disagreeable. It increases the cardiac rate, and promotes the secretions of the skin, bronchi and kidneys. It is an efficient anthelmintic against the round worm in doses of gtt. x three times a day for two days and followed by a cathartic. It seems to possess some tonic properties, and certainly is a diffusible stimulant. As such it has been used with benefit in chorea, hysteria, flatulent dyspepsia, and chronic malaria.

CHIMAPHILA, Pipsissewa,—the leaves of *Chimaphila umbellata*, or Prince's Pine, an evergreen plant of the nat. ord. Ericaceæ, indigenous in all parts of the United States. The leaves are about 2 inches long, serrate above, wedge-shaped towards the base, having an astringent and bitter taste. Contains *Chimaphilin*, a yellowish crystalline principle, *Arbutin*, also crystalline but colorless, with tannic acid, etc.

Preparations.

Extractum Chimaphilæ Fluidum,—Dose, ʒss–ij.
Decoctum Chimaphilæ (Unofficial),—1 to 17. Dose, ℥j–iij.

Physiological Action and Therapeutics.

Chimaphila is a tonic, astringent diuretic, belonging to the same group as Buchu, Uva Ursi, Pareira and Scoparius. It is probably the most active diuretic among them, stimulating all the excretory organs but especially the kidneys. It is an agreeable tonic, excites the appetite and promotes digestion. The fresh leaves, bruised and applied to the skin, are rubefacient and vesicant, showing the presence of some irritant principle.

Chimaphila is a good diuretic in dropsy, and is efficient in several forms of chronic kidney disease with albuminuria, and in chronic catarrhal affections of the urinary passages, as hematuria, ischuria, dysuria and gonorrhœa. It is believed to check the secretion of uric acid, and should prove useful in gout and rheumatism. Externally, it has been applied to ulcers and tumors with benefit.

CHINOLINA, Chinoline, Leucoline, C_9H_7N (Unofficial), a constituent of coal-tar oil—but may be obtained from Quinine or Cinchonine by their destructive distillation with potassium hydrate,—an may be artificially prepared by heating Anilin or Nitro-benzol with glycerin in the presence of a dehydrating agent. Chemically, it is considered to be formed by a union of Benzene and Pyridine atoms. (Compar the article CINCHONA.) It is a colorless, oily liquid, strongly refractive boiling at 460° F. without decomposition, turns dark on exposure to th air; soluble in alcohol, ether and carbon disulphide, sparingly so i water. It combines, like an alkaloid, with acids to form crystalline salts all of which, except the tartrate, are very deliquescent.

Preparation.

Chinolinæ Tartras,—a white, micaceous, crystalline powder, of pungent odor and shar taste, stable in the air and soluble in water. Dose, gr. v–xx.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Chinoline is a valuable antiseptic and antipyretic, being nearly a effective in this respect as Quinine, which it closely resembles in chemica character and physiological action. It is one of the most powerful antipyretics of all the substances which have been discovered in the searc for an artificial quinine (Hydroquinoine, Antipyrin, Pyrocatechin, Resorcin, Thallin, Kairine, etc.). Chinoline has a very disagreeable taste an smell, and is irritant in action, hence the tartrate is preferred for medicinal use. It has been extensively used as an antipyretic in pneumonia typhus, diphtheria, typhoid and other fevers, with varying success. I diphtheria, a 5 per cent. solution in weak alcohol is painted on th affected surface with great benefit. The tartrate has been used beneficially in neuralgia and whooping-cough, and as an antiperiodic in intermittents.

CHIRATA, Chiretta,—is the Indian plant *Ophelia Chirata*, nat. ord. Gentianaceæ, occurring in bundles composed of all but the coarse woody stems. It is inodorous but intensely bitter, and contains *Chirati* and *Ophelic Acid*, two amorphous, bitter principles, but no tannin. Dose of the powdered plant, gr. xv–xxx.

Preparations.

Extractum Chiratæ Fluidum,—made with glycerin and diluted alcohol. Dose ♏xv–xxx.

Tinctura Chiratæ,—10 per cent. Dose, ʒss–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action of this plant is that of a simple bitter, like its congene Gentian. It is an excellent tonic, in this respect rivalling Cinchona, and is used in India as a substitute for the latter. It is laxative and stomachic, diminishes flatulency and acidity, and is particularly serviceable in the dyspepsia of gouty subjects. As it contains no tannin, it may be administered with preparations of Iron.

CHLORAL, Hydrate of Chloral, C_2HCl_3O,H_2O,—is inaccurately named, the hydrate being the official preparation. *Chloral*, properly so-called, is *Tri-chlor-aldehyde*, C_2HCl_3O, an unstable, oily, colorless fluid, formed by the action of Chlorine upon Alcohol, whence its name Chlor-al. Its hydrate, the official Chloral, is a colorless, crystalline solid, which slowly evaporates on exposure to the air, of aromatic and acrid odor, bitter and caustic taste, and neutral reaction. It is freely soluble in water, alcohol, ether, glycerin, oils, etc., liquefies when mixed with camphor or carbolic acid, melts at 136° F. and is decomposed by alkalies into chloroform and a formiate of the alkaline base. Its aqueous solution becomes acid, but the alcoholic solution remains neutral.

Dose varies much with individual susceptibility and with the presence or absence of cardiac and pulmonary disease. Death has been caused in several instances by gr. xxx, in one case by gr. x, and in another gr. vijss produced alarming symptoms, all being adults. On the other hand several hundred grains have been ingested at one time without lethal effects, and where tolerance has been established by habitual use, ʒ ij–ʒ iij are frequently taken without poisonous symptoms. An average dose for a healthy adult is gr. xv, for a child gr. j for each year of age up to gr. vj. It is best given in Syrup of Tolu.

When prescribed in combination with alcoholic preparations, Chloral Hydrate is very apt to separate as an alcoholate, especially if the Bromides of Potassium or Sodium are used in the same mixture and if the solutions are at all concentrated. In this way great danger is incurred of giving a heavy overdose, as the alcoholate floats on the surface of the mixture.

Analogues of Chloral.

Amylene Hydrate, $C_5H_{12}O$, *Di-methyl-ethyl-carbinol*,—a tertiary alcohol, occurring as a clear, colorless fluid, of peculiar odor, soluble in 8 of water and readily miscible with alcohol. It is one of the most valuable hypnotics, in power standing between chloral and paraldehyde, but being much more agreeable to the taste and safer than either of those agents. Its action is exerted chiefly on the cerebrum in doses sufficient to produce profound narcosis; and in medicinal doses it leaves behind no unpleasant effects, and has no perceptible influence on the heart or respiration. By very large dosage the medullary centres are paralyzed, including those governing respiration and cardiac action. Dose, ʒj–ʒjss.

Cannabini Tannas, *Tannate of Cannabin*,—(see *ante*, page 149),—is not more reliable than the Extract of Cannabis Indica, though devoid of the exciting qualities of the latter preparation. Dose, as a hypnotic, gr. ij–x, the average being gr. v. Fronmüller considers it a very useful hypnotic, powerful and not dangerous, not disturbing the secretions, nor leaving unpleasant after-effects, if used in proper doses.

Croton-chloral, $C_4H_5Cl_3O,H_2O$, *Butyl-chloral Hydrate* (B. P.),—a crystalline body formed by acting on Aldehyde with Chlorine. It is sparingly soluble in water (1 in 100), but is readily so in glycerin (1 in 4). In action it closely resembles Chloral, but is feebler, less depressant to the heart, and generally less poisonous, but more disagreeable to the taste. It is said to specifically affect the fifth nerve, and to cause anæsthesia over its distribution long before producing general anæsthesia (Liebreich). Dose, as hypnotic, gr. v–xx.

Hyoscinæ Hydrobromas, *Hydrobromate of Hyoscine*,—is an efficient hypnotic, with the advantage of being tasteless, and having a very small dose, (gr. $\frac{1}{80}$), so that it may be given in tea, coffee, etc. It is apt to affect the head afterwards, and soon loses its power by repetition. In large doses it is a dangerous respiratory depressant.

Hypnone, $C_6H_5(CO)(CH_3)$, *Phenyl-methyl-acetone*,—a member of the Ketones, occurring above 70° F. as a colorless, mobile liquid, having a strong almond and orange odor. It is insoluble in water or glycerin, and is best given in capsules. It is a hypnotic, of only moderate intensity, but said to be especially useful in the insomnia of alcoholism. Its use is devoid of danger, and leaves behind no unpleasant effects, except a disagreeable odor of the breath, the drug being eliminated by the lungs as well as by the kidneys. In very large dosage it has induced coma, followed by paralysis of the heart and respiration. Dose, ♏v-x, in capsule, ♏vij to ♏viij being usually required.

Methylal, $CH_2(OCH_3)_2$, *Methylene-di-methyl Ether*,—one of the products of the oxidation of Methylic Alcohol, occurring as a volatile, mobile liquid of pleasant, aromatic odor and taste, readily soluble in water, alcohol, etc. It is a local anæsthetic, and an efficient hypnotic, producing a deep sleep of short duration, with more or less general anæsthesia and lowered reflex excitability. It is depressant to the heart, respiration and body temperature, but in medicinal doses does not leave any bad after-effects. Dose, *per orem*, ♏iv–v, repeated thrice at short intervals.

Paraldehyde, $C_6H_{12}O_3$,—a polymeric form of Aldehyde, if represented thus $(C_2H_4O)_3$. Occurs as a strong-smelling, bad-tasting fluid, soluble in 8 parts of water. It is a reliable hypnotic of about one-half the power of chloral, leaving behind no unpleasant effects except a very disagreeable odor to the breath. In medicinal doses it slows and strengthens the heart, but in very large dosage it is paralyzant to both heart and respiration. It occasionally causes an erythematous eruption, and may give rise to cerebral congestion and vaso motor paralysis, if used for any long period. Dose, ♏xxx–ʒj in water, syrup, etc.,—♏xl being about the average hypnotic dose.

Sulphonal, $(CH_3)_2C(C_2H_2SO_2)_2$, belongs to the group of Disulphones, and has the chemical name *Di-ethyl-sulphon-di-methyl-methan*. It is a whitish, crystalline substance without odor or taste, very slightly soluble in cold water, more so in warm water, and still more so in alcohol, ether, etc. The dose is gr. xv–xlv, in hot soup or milk, coffee, tea, etc., administered two hours before the effect is desired.

Sulphonal is said to have no intoxicant or narcotic action, and no unfavorable effect on the heart or circulation, even in full doses. It is an admirable hypnotic in many cases, but its efficacy decreases with use.

Urethane, $NH_2CO_2C_2H_5$, *Ethyl Carbamate*,—occurs in crystals which are readily soluble in water, with scarcely any taste or odor. It is devoid of irritant action, and may be administered hypodermically. It is a pure hypnotic, but not so reliable as paraldehyde or chloral; neither does it affect the circulation nor depress (but rather stimulates) the respiration. It acts directly on the cerebrum, causing a sleep which closely resembles the normal, and has no unpleasant after-effects. In very large doses it slows the heart, lowers the temperature, and induces muscular resolution and general anæsthesia. In small animals it effectually antagonizes the action of Strychnine. Dose, gr. xv–ʒj, an average hypnotic dose being gr. xxx; but it is best given in 5-grain doses repeated frequently, as a large dose may cause vomiting.

PHYSIOLOGICAL ACTION.

Chloral is a powerful hypnotic, also an antispasmodic, an antiferment, a preventive of the coagulation of fibrin, indirectly an anæsthetic, and especially a depressant of the cerebral, medullary and spinal centres and of the cardiac muscle. It is more hypnotic than chloroform but less of an anæsthetic. Applied to the skin or mucous membranes a 1 per cent. solution (gr. v ad ℥j) is antiseptic, but strong solutions are irritant and vesicant, may produce sloughing ulcers, and if taken internally may excite gastritis with nausea and vomiting.

After a brief period of stimulation a medicinal dose depresses the heart and lowers arterial tension, diminishes oxidation and decreases the body temperature. On the brain cells it has a selective action, producing a deep sopor very like normal sleep, from which the patient may be awakened, but immediately falls asleep again, and which is not followed by headache or depression. This effect is considered by some authorities to be the result of cerebral anæmia produced by the drug. In some persons, instead of sleep it causes headache, insomnia and delirious excitement. It is not an anodyne, as it does not affect the conductivity of the sensory nerves, and does not interrupt the transmission of pain; but by overwhelming the centres it drowns the *consciousness* of pain, and is therefore only indirectly anæsthetic. A toxic dose produces profound narcotism, abolishment of reflexes and sensibility, complete muscular relaxation and a great fall of body temperature. Death may result in the chloral sleep from paralysis of the respiratory centre or the cardiac motor ganglia, or by sudden failure of the heart-muscle in cases of fatty degeneration or in old drunkards.

THE CHLORAL-HABIT produces a state of marked anæmia, its subject presenting a weak, irritable, often irregular heart, deranged hepatic functions, jaundice, bileless stools, perhaps purpura and sloughing of a finger from decreased blood-supply. Its votaries are on the border of insanity, excitable, uncontrollable in speech and action, talking in a silly manner and very volubly. Many cases of insanity have their origin in chloralism.

On the blood its action is to increase the fluidity, crenate the red corpuscles, and to destroy the leucocytes if used in large quantity. It is rapidly diffused, and is excreted by the kidneys partly unchanged, but chiefly as urochloralic acid, producing some diuresis,—also by the skin, causing various eruptions if used for any lengthened period. It has been held that the blood, being an alkaline fluid, decomposes it, setting free chloroform, but there are many facts against this theory.

CHLORAL AND ATROPINE, though antagonistic in their action on the spinal cord, both produce motor paralysis, the former by paralyzing the cord, the latter by direct paralysis of the motor nerves.

Antagonists and Incompatibles.

Atropine antagonizes its cardiac, respiratory and spinal depression, and should be injected in small doses frequently repeated, until its effects are apparent. *Morphine* administered with Chloral antagonizes the tendency to cardiac failure, while synergistic to the hypnotism. While Chloral is the antagonist to Strychnine, opposing the spinal action of that drug, the reverse is only true to a very limited extent. Heat is a necessary application, to maintain the body-temperature, and artificial respiration should be practiced if required. All alkalies are incompatible.

THERAPEUTICS.

Chloral Hydrate is of great value as a hypnotic and antispasmodic, but must be cautiously used if at all in old alcoholics or persons with weak or fatty hearts, atheromatous vessels or advanced pulmonary disease. In combination with Potassic Bromide it is much used in asylum and general practice, and equally abused, both drugs being active cardiac poisons. It is highly serviceable in fevers, when high temperature exists with excitement, restlessness and a sthenic condition, as it lowers temperature and prevents the coagulation of fibrin. In the algid stage of cholera and in violent cases of cholera morbus it may be injected hypodermically in 15-grain doses with extraordinary efficacy. In sea-sickness small doses (gr. v) two or three times a day are generally very efficient. In obstetrics it is used to relieve suffering, relax the os uteri, palliate convulsions and to relieve after-pains. For nocturnal epilepsy a full dose at bedtime is a useful palliative. In neuralgia it may be triturated with camphor and applied over the course of the affected nerve. Tetanus is best treated by chloral and potassic bromide. It is an excellent remedy for infantile convulsions and colic, chorea, spasmodic asthma, whooping cough, laryngismus stridulus, and the first stage of diphtheria, but not when the heart is weak. In acute mania and delirium tremens it is the best hypnotic, but has been too incautiously employed. In cancers and ulcers a 25 per cent. solution is a good antiseptic and anodyne application. In strychnine-poisoning Chloral is the antagonist. It is generally given by the mouth in dilute solution with some simple elixir or cinnamon-water, but is well absorbed by the rectum. Its hypodermic administration is liable to result in great local irritation and even sloughing ulcers.

The mixture of Chloral and Camphor is a good local application in superficial neuralgia, and may be painted over the larynx for spasmodic cough. It makes a good remedy for internal use in colic, cholera and cholera morbus, especially if combined with Morphine.

CHLORAL BUTYLICUM, Butyl-chloral Hydrate, Croton-chloral, $C_4H_5Cl_3O,H_2O$ (Unofficial),—is formed by the action of Chlorine upon Aldehyde, then adding to the Butyl-Chloral thus produced the necessary water. It occurs in crystalline scales, insoluble in chloroform, sparingly soluble in water, but freely soluble in alcohol, hot water and glycerin. Dose gr. v–xx, in syrup or pill. But the best method is to give 5 grains every half-hour until 20 grains have been taken or relief afforded.

Physiological Action and Therapeutics.

Croton-chloral so far as is ascertained has an action parallel to that of Chloral Hydrate, but feebler and less certain. It is said to have a specific paralyzant power over the 5th nerve, and to have no paralyzant effect on the heart. It has been used with benefit in various neuralgiæ, especially tic-douloureux, also in sciatica and dysmenorrhœa. All statements of the action and therapeutics of this drug are to be received with hesitation, as wide differences are reported by the best authorities.

CHLOROFORMUM, Chloroform, $CHCl_3$ or $CHCl_2Cl$,—the *Terchloride of Methyl*, or the *Chloride of Bichlorinated Methyl* (Di-chlormethyl Chloride),—is formed by the substitution of 3 atoms of Chlorine for 3 of Hydrogen in Methyl Hydride (marsh-gas, CH_4). In practice it is obtained from Ethylic Alcohol or Methylated Spirit by the action of Chlorinated Lime, or from Chloral by an alkaline hydrate, and is known chemically as *Normal Chloroform*. If prepared from Methylic Alcohol (wood-spirit) it is called *Methylic Chloroform*, and is purified with great difficulty. The object of purification is to remove the chlorinated pyrogenous oil. Absolute Chloroform has a sp. gr. of 1.500, and decomposes easily in sunlight or diffused daylight, but when reduced to a sp. gr. of 1.485 to 1.490 by alcohol it will keep well. It is official in two forms, viz.—

CHLOROFORMUM VENALE, Commercial Chloroform,—is a liquid containing at least 98 per cent. of Chloroform, and having a sp. gr. not lower than 1.470. It contains sundry Hydrocarbons, free Chlorine, Aldehyde and Hydrochloric Acid, and is used only for external applications, or to make the purified article. It is a constituent of Linimentum Chloroformi.

CHLOROFORMUM PURIFICATUM, Purified Chloroform,—is a heavy, clear, colorless, diffusive liquid, of characteristic odor, sweet, burning taste and neutral reaction, soluble in 200 of water, freely so in alcohol or ether, also in oils, benzol or benzin. Sp. gr. 1.485 to 1.490 at 59° F., and contains ¾ to 1 per cent. of alcohol. Dose, internally, ♏ij–xx, for inhalation about ʒj, repeated until the desired effect is produced.

Preparations.

Mistura Chloroformi,—contains of Purified Chloroform 8, Camphor 2, fresh Yolk of Egg 10, Water 80 parts. Dose, ʒj–℥j.

Spiritus Chloroformi,—contains of Purified Chloroform 10, Alcohol 90 parts. Dose, ♏x–ʒj, well diluted.

Linimentum Chloroformi,—Commercial Chloroform 40, Soap Liniment 60 parts.

Linimentum Chloroformi Compositum (Unofficial),—Chloroform ℥j, Oil of Turpentine ℥j, Tincture of Opium ʒiv, Tincture of Aconite ʒij.

Chlorodyne (Unofficial),—a celebrated secret mixture, put forth by Dr. J. Collis Browne, of London, and since imitated by many others. It is supposed to contain Chloroform, Ether, Morphine, Cannabis Indica, Hydrocyanic Acid, Capsicum, etc., and is powerfully anodyne, antispasmodic and narcotic, and therefore highly dangerous in non-professional hands. Dose, ♏x–xxx, according to the quantities of Morphine and Chloroform present, these being the active agents in the preparation. A comparison of the principal formulæ which have been used in imitation of Browne's Chlorodyne is given in the appendix, and will show the wide differences between them. A list of 25 formulæ for Chlorodyne was published in the *Therapeutic Gazette* for October, 1883.

Tinctura Chloroformi et Morphinæ (B. P.),—has been recently made official as a substitute for Chlorodyne. Each dose of 10 minims contains of Chloroform ♏1¼, Ether ♏½, Alcohol ♏1¼, Morphine Hydrochlorate gr. $\frac{1}{48}$, Dilute Hydrocyanic Acid ♏$\frac{5}{8}$, Oil of Peppermint ♏$\frac{1}{80}$, Fluid Extract of Liquorice ♏1¼, Treacle and Syrup q. s.

Tinctura Chloroformi Composita (B. P.),—has of Chloroform 2, Alcohol 8, and Compound Tincture of Cardamoms 10. Dose ♏xx–ʒj.

Anæsthetic Mixtures containing Chloroform,—see under ÆTHER, *ante*, page 79.

Some Chlorinated Anæsthetic Compounds.

Ethylene Bichloride, Dutch Liquid, Chloric Ether, $C_2H_4Cl_2$,—is a rapid and powerful anæsthetic, probably safer than Chloroform and less so than Ether. It always paralyzes the respiratory centre before the heart, so that its effects may be easily watched and controlled. This is the substance which Guthrie supposed he had obtained when he discovered Chloroform.

Ethylidene Chloride, Chlorinated Muriatic Ether, $CH_3,CHCl_2$,—is a mixture of varying sp. gr., and is not inflammable. It closely resembles Chloroform both physically and physiologically, but is less depressant to the heart, consequently safer, and recovery from its effects is very prompt.

Methyl Chloride, CH_3Cl,—a colorless gas, slightly soluble in water, of sweetish odor and taste, inflammable, burning with a greenish flame. Cold liquefies it, and the liquid boils at —7.6° F. It is used locally in neuralgiæ to produce intense cold, and with remarkable success.

Methylene Bichloride, Dichloro-methane, CH_2Cl_2,—is an effective anæsthetic which it was supposed would displace Chloroform as being much safer. Dr. Richardson introduced it and Mr. Spencer Wells advocates its use, but though little used as compared with other anæsthetics several deaths have occurred from its employment. It kills by paralyzing the heart.

Carbon Tetrachloride, CCl_4,—is less irritant than Chloroform, but far more dangerous to the heart.

PHYSIOLOGICAL ACTION.

The action of Chloroform is similar to that of Ether (see *ante*, page 80) with several important differences, as follows: It is more irritant to the mucous membranes, and if swallowed undiluted it produces violent gastro-enteritis, which becomes apparent after the subsidence of the profound narcotism which at first follows its ingestion in quantity. A dose of ℥j internally will cause death. It is less of a stimulant than Ether, and more depressant to the heart and circulation. It clots blood outside the body, making a mass like sealing wax.

Inhaled for anæsthetic purposes it is considered much more dangerous than Ether from its direct paralyzant effect on the heart. Its vapor requires admixture with 96½ per cent. of air to produce anæsthesia with safety according to the authorities on the subject. As compared with Ether its vapor is less irritant to the air-passages, uninflammable, more pleasant, more prompt in action, has a shorter stage of excitement and a more profound narcosis, and produces much less vomiting. Its mortality is greater, being 1 in 3000, against 1 in 16,000 for Ether, about 500 fatal cases being reported, none of which, however, were in obstetrical practice. Death from Chloroform-inhalation is almost always sudden and by cardiac paralysis,—from Ether it is slow and usually by paralysis of respiration.

[For modes of death from anæsthetic vapors and the treatment of dangerous symptoms, see *ante*, page 81.]

Antagonists.

There is no chemical antidote. If swallowed, the stomach should be evacuated and the case treated as one of poisoning by an irritant. Amyl Nitrite by inhalation, and Atropine hypodermically, to sustain the heart.

THERAPEUTICS.

Chloroform is used for the same conditions as is Ether, and is much employed in liniments as a rubefacient and anodyne application, as in pruritus, rheumatic and neuralgic pains, etc. Internally it is advantageously administered in true cholera, in which it has been more efficacious than any other single remedy, in cholera morbus, vomiting, colic, dysmenorrhœa, hepatic colic, and other pains of internal and spasmodic character. In sciatica, tic-douloureux and other neuralgiæ of important nerves the deep injection of ♏v–xv of pure Chloroform in the vicinity of the nerve is highly recommended, though it may cause dangerous local disturbance. The writer has, in several cases of severe supra-orbital neuralgia, injected two or three minims of Chloroform into the vicinity of the supra-orbital nerve just above its foramen of exit, with the most gratifying results, though severe local pain and considerable swelling were experienced for several days. The vapor in small quantities inhaled from warm water is useful in many neuroses, as hay-fever, spasmodic asthma, reflex cough.

As an Anæsthetic the use of Chloroform is decreasing every year in favor of Ether, except for young children and in obstetrical practice. Its vapor being four times denser than air, and the rule for its effective use requiring fully 96½ per cent. of air with it, its administration according to the orthodox fashion requires most careful management, and should never be attempted in any but the recumbent posture. An ounce of Brandy and a hypodermic injection of Morphine, gr. $\frac{1}{8}$, with Atropine, gr. $\frac{1}{120}$, given 20 minutes before commencing the inhalation, are means of great utility in sustaining the heart and respiration, as well as in rendering the anæsthesia more profound. No operation, especially on parts supplied by the fifth nerve, should be undertaken during partial chloroform anæsthesia, for the reasons given on page 81.

Dr. Sayre administers Chloroform in a manner which is calculated to strike terror to the heart of an emotional observer who is impressed by the orthodox rule of 96½ per cent. air with 3½ per cent. of the anæsthetic as the only safe proportion. Having been made familiar with the practice of Dr. Sayre through observance of the method employed by some of his pupils, the writer sought for more direct instructions from that distinguished surgeon, and received from him a letter from which the following paragraphs are extracted.

> "I have employed no other method for more than twenty years, have used it in this manner in some thousands of cases without the least appearance of danger, and can therefore speak with confidence as to its safety.
>
> "My plan is simply to anæsthetize the patient with the *smallest amount of Chloroform possible;* and as *Oxygen* is the ANTIDOTE to the anæsthetic I *exclude all air* that is *not impregnated with the anæsthetic.*
>
> "In this manner a very few inspirations will produce immediate anæsthesia without the muscular struggling which always follows when pure air is admitted with the chloroform. I always measure my dose with the same care as if I were administering Arsenic, Strychnine, Corrosive Sublimate, or any other potent agent; and then I know what I am doing. If by accident there should be some peculiarity about the patient, making him unduly susceptible, a few artificial respirations would soon remove the influence of the few drops which had been inhaled, and thus all danger can be avoided. Five, ten or twenty drops of Chloroform administered in this manner is all that is requisite to produce immediate and profound anæsthesia. I have explained my method hundreds of times at my clinical lectures in Bellevue Hospital, many of which have been published at different times in different medical journals by various persons who have made stenographic re-

ports of my lectures. In the 'Transactions of the International Medical Congress,' held in Philadelphia in 1876, is a verbatim report of my remarks on this subject made while I was performing an exsection of the hip-joint in the hospital before the Congress."

I remain, yours truly,
LEWIS A. SAYRE.

The writer can add his testimony to that of the above letter respecting the thorough anæsthetic effect and freedom from unpleasant symptoms observed in a large number of cases in which Chloroform was administered in the manner described under his observation during the past six years. As to the safety of this method over the ordinary way no conclusion can be reached without the results of many thousands of examples in the hands of many different observers.

CHLORUM, Chlorine, Cl,—is a greenish-yellow gas having a suffocating odor and belonging to the group of *Halogen* elements, so named (from ἅλς, the sea) because its most important members Chlorine, Bromine and Iodine are derived from the ocean, Chlorine being obtained from sea-salt, Bromine from sea-water, and Iodine from sea-weed. Chlorine itself is not official, but is represented in medicine by 2 *Chlorates* and 8 *Chlorides* (of Potassium, Sodium, Ammonium, Calcium, Iron, Gold, Zinc and Mercury), which are described under the titles of their respective bases; also by Hydrochloric Acid, Chloral, Chloroform, etc., and by the following preparations which furnish it.

Preparations.

Aqua Chlori, Chlorine Water,—is an aqueous solution of Chlorine, containing at least 0.4 per cent. of the gas; and is prepared by heating together Black Oxide of Manganese 10 parts and Hydrochloric Acid 40 parts, then saturating 400 of distilled Water with the gas so obtained. It is a clear, greenish-yellow liquid, of suffocating odor and disagreeable taste. Dose, ʒj–℥ss, well diluted, as a lotion or spray; internally, ♏x–xx in water.

Chlorine Water may be extemporaneously prepared by mixing in a mortar Chlorate of Potassium 40 grains and Hydrochloric Acid ½ ounce, and adding a pint of distilled water by agitation during the evolution of the vapors. If done in a closed vessel danger may arise from the explosive gas, Cl_2O_4, which is liberated at the same time. It should be quickly bottled.

Calx Chlorata, Chlorinated Lime, Chloride of Lime,—is a compound resulting from the action of Chlorine upon Calcium Hydrate, and containing at least 25 per cent. of available Chlorine. It is obtained by exposing slaked Lime to the action of Chlorine gas as long as the latter is absorbed, and should not be confounded with Chloride of Calcium (see *ante*, page 143). It occurs as a whitish, dry powder or friable lumps, gradually decomposing in the air, of saline, disagreeable taste and a feeble Chlorine odor, partially soluble in water and in alcohol, and when dissolved in dilute Hydrochloric acid gives off Chlorine gas. Dose, gr. iij–vj in water; for external use a 1 to 3 per cent. solution. *Liquor Calcis Chloratæ*, B. P., is a solution of 1 pound in 1 gallon of water.

Liquor Sodæ Chloratæ, Solution of Chlorinated Soda, Labarraque's Solution,—a pale-greenish liquid, of faint Chlorine odor, and alkaline taste and reaction; prepared by adding together watery solutions of Sodium Carbonate 100 parts and Calx Chlorata 80, each in 400 parts of water, then adding Water up to 1000. Contains Sodium Hypochlorite and Chloride. Dose, ♏x–ʒj in 20 parts of water.

PHYSIOLOGICAL ACTION.

Chlorine is actively irritant to the skin and mucous membranes. Locally applied it produces heat, burning and even vesication. Inhaled in any quantity it causes cough, sneezing and spasm of the glottis, also inflammation of the air-passages and of the lungs. It is the most powerful of all disinfectants and deodorants, also an antiseptic and antifermentive agent of the highest activity. Its power in all these respects is due to its affinity for hydrogen, decomposing all bodies in which hydrogen enters as a molecular constituent, forming chlorhydric acid and setting oxygen free in its nascent form (ozone). Used internally it has the same local action on the parts with which it comes in contact, and on reaching the stomach in dilute solution it is converted into hydrochloric acid and chlorides, losing all further action on the body in its own character.

Antidotes.

AMMONIACAL VAPORS inhaled after Chlorine form Ammonium Chloride. Ammonium Sulphide has a similar reaction, but should be inhaled in great moderation. **ALBUMEN** is the antidote if Chlorine preparations have been taken into the stomach, and a little Aqua Ammoniæ, sufficiently diluted, may also be administered with advantage.

THERAPEUTICS.

The chlorinated preparations are used as disinfectants and deodorizers of rooms, drains and discharges from the body. They are rarely used about the person or clothing of patients by reason of the irritation produced by them when inhaled, and their power to destroy the color of fabrics. In dilute solution they are well employed as local applications in aphthæ, gangrene, scarlet fever and diphtheria, in which their principal action is to destroy fetor. The same may be said of their use in sloughing ulcers and gangrenous wounds, foul discharges, etc., as they are rarely employed about the person in sufficient strength to have any destructive effect on disease-germs. A strong solution of Chlorinated Soda is a good application to bites of serpents and insects, to prevent infection by the syphilitic poison, and to wash the hands after contact with infectious material.

A combination of Potassium Chlorate and Tinctura Ferri Chloridi, makes a solution of Chlorine, Euchlorine, Potassium Chloride and Ferric Chloride, when diluted with water, and gives one of the best and most innocuous solutions of antiseptics. It makes an excellent gargle for sore throats, simple or diphtheritic. Glycerin should never be added to it, as the resulting mixture will be liable to explode violently.

These preparations have been administered internally in septic diseases, low fevers, etc., but without producing any marked beneficial results.

To disinfect unoccupied rooms all means of exit should be stopped up, then a pound of Chlorinated Lime sewed loosely in a strong canvas bag is immersed in a mixture of a pint and a half of common muriatic acid with 4½ pints of water, and left 24 hours.

CHONDRUS, Irish Moss,—consists of two sea-algæ, *Chondrus crispus* and *Chondrus mammilosus*, dried and bleached. Is horny, translucent, pale yellowish-white, swelling in water, of sea-weed odor and mucilaginous, saline taste. On boiling with 30 parts of water for ten minutes it yields a solution which gelatinizes on cooling. It contains 90 per cent. of mucilage with traces of Iodine and Bromine, also 1 per cent. of Nitrogen. There are no official preparations. A jelly or blanc mange may be prepared by boiling ℥ij in ℥xxxiv of water for an hour, straining and adding ℥iij of sugar while hot. Dose, indefinite.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Irish Moss is a demulcent and nutrient substance of some slight value in bronchial and catarrhal affections. Having no starch in its composition it is not so valuable as Iceland moss (Cetraria) as an article of food for the sick.

CHRYSAROBINUM, Chrysarobin,—is a mixture of proximate principles extracted from *Goa-powder*, a substance found in cavities formed by decay in the wood of the trunk of *Andira Araroba*, a Brazilian tree of the nat. ord. Leguminosæ. It is commonly misnamed "Chrysophanic Acid" (which is one of the constituents of Rheum)—though easily converted into that substance. Occurs as an orange-yellow powder, odorless and tasteless, nearly insoluble in water and alcohol, but readily soluble in ether, solutions of alkalies and sulphuric acid. Dose, gr. ⅛–gr. xx.

Preparation.

Unguentum Chrysarobini,—Chrysarobin 10, Benzoinated Lard 90 parts. Should be diluted for average use from 3 to 5 times.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

In 30-grain doses Chrysarobin is a gastro-intestinal irritant, producing large, watery, bilious stools, with repeated vomiting but not much nausea. Locally it produces diffuse dermatitis often followed by follicular and furuncular inflammation. It stains the skin a dark yellowish-brown color, which may be removed by a weak solution of chlorinated lime. The use of this remedy is confined to superficial parasitic skin diseases of vegetable origin, and for psoriasis, in the latter affection it being the best remedy known. It may be used in weak ointment locally, and internally in ⅛-grain doses.

CIMICIFUGA, Black Snake-root, Black Cohosh,—is the rhizome and rootlets of *Cimicifuga racemosa*, a plant of the nat. ord. Ranunculaceæ, native in the United States. Rhizome horizontal, 2 inches long or more, about 1 inch thick, with numerous upright or curved branches. Rootlets numerous, containing a ligneous cord which branches into four or five rays. Contains a *Volatile Oil* when fresh, resin, tannic and gallic acids, also an acrid, crystallizable, neutral principle. *Cimicifugin* or *Macrotin* is an impure resin obtained by precipitation from a concentrated tincture by the addition of water. The active principle has not been isolated.

Preparations of the Fresh Root.

Extractum Cimicifugæ Fluidum,—alcoholic. Dose, ♏v–xxx.
Tinctura Cimicifugæ,—20 per cent. Dose, ♏xv–ʒj.
Macrotin (Unofficial),—Dose, gr. ½–ij.

PHYSIOLOGICAL ACTION.

Cimicifuga is stomachic, antispasmodic, aphrodisiac, diaphoretic, diuretic and expectorant. Its taste is bitter and nauseous, resembling that of Opium. It acts on the heart and circulation similarly to Digitalis, and on unstriped muscular fibre like Ergot, but is much feebler in activity than either of these agents. Small doses stimulate digestion and secretion, the generative function and the menstrual flow, and especially the secretions of the bronchial mucous membrane and the kidneys. Full doses slow the heart while increasing its force, raise arterial tension and stimulate uterine contraction. Large doses dilate the pupils and produce dimness of vision, vertigo, intense headache, nausea, vomiting, and in some persons soporific and anodyne effects.

THERAPEUTICS.

Cimicifuga closely resembles Digitalis in action, but it is safer, and should be more frequently used when the latter drug is indicated. In cardiac diseases it is very efficient, especially in weak or fatty heart where Digitalis would be dangerous. It is a good stomachic tonic particularly in the irritable dyspepsia of alcoholism. As an expectorant it is used in acute and chronic bronchitis. It is a good nerve-tonic in delirium tremens, and in functional impotence it is remarkably efficient. In rheumatism of the localized muscular variety, as lumbago, torticollis, pleurodynia, intercostal rheumatism, etc., it is one of the most efficacious remedies, having a strong affinity for the muscular system. Neuralgias of various kinds are benefited by it, particularly ovarian neuralgia. Chorea about the age of puberty is one of the affections in which it is most efficient, and the same may be said of the hysterical form of this disease.

Many uterine disorders are remarkably benefited by Cimicifuga, such as amenorrhœa, neuralgic and congestive dysmenorrhea, subinvolution, spinal irritation due to some obscure sympathetic or neuralgic affection of the womb, sympathetic pains and neuralgiæ arising from the so-called irritable womb, passive menorrhagia, etc. In obstetrics it gives excellent results when used to initiate uterine contractions, check hemorrhage, allay afterpains and nervousness after delivery. In puerperal mania and peritonitis its good effects are frequently remarkable, and in puerperal hypochondriasis it is strongly recommended by very high authority.

CINCHONA, Peruvian Bark.—The Cinchona tree belongs to the nat. ord. Rubiaceæ and is a native of the eastern slope of the Andes, but has been largely planted in India, Ceylon, Java and Burmah, with the result of improving the quinine-yielding value of many species by cultivation. In late years the test of appearance has given way to that of assay in judging of the various barks of commerce, and only those are official which yield 3 per cent. of total alkaloids of which at least 2 per cent. must be Quinine. Yellow bark contains most Quinine (as high as 9 per cent. having been obtained from one specimen), pale bark contains most Cinchonine and least Quinine, while red bark contains these alkaloids in about equal proportions. The Columbian varieties afford the largest percentage of Cinchonidine.

The principal varieties of the sub-order Cinchoneæ, the barks of which are found in commerce and used by manufacturers of the alkaloids, are—

Cinchona Calisaya, Yellow Bark,—from Peru, Bolivia and India.
Cinchona Succiruba, Red Bark,—from Ecuador, Java and Ceylon.
Cinchona Condaminea, Pale Bark,—from Ecuador and Peru.
Cinchona Pitayensis, Pitaya Bark,—from New Granada.
Cinchona Micrantha, Gray Bark,—from Peru and Bolivia.

Altogether there are some 31 species acknowledged by botanists, and the list is constantly increasing from the tendency of the different trees to hybridize. Several trees formerly acknowledged as Cinchonas are now placed in the genus Cascarilla, but their barks are to be found on the market. Cuprea bark is from trees of the genus Remijia, growing in Columbia; it contains Quinine and a peculiar alkaloid, ***Cinchonamine***, but no Cinchonidine.

OFFICIAL SPECIES.

CINCHONA,—is the bark of any species of Cinchona which contains at least 3 per cent. of its peculiar alkaloids, as determined by assay according to a prescribed rule.

Cinchona Flava, Yellow Cinchona, Calisaya Bark,—is the bark of *Cinchona Calisaya*, containing at least 2 per cent. of quinine. Occurs in tawny-yellow flat pieces or quills, ridged exteriorly, finely striated on inner surface, breaking with a transverse fracture showing numerous rigid fibres in bundles or radial rows.

Cinchona Rubra, Red Cinchona,—the bark of *C. succiruba*, containing at least 2 per cent. of quinine. Occurs in brown-red quills and flat pieces of various sizes, with ridges and warts on outer surface, coarsely striated on inner surface.

Bark may be administered in doses of gr. x-ʒj, but it is never used now in substance, being too bulky and disagreeable.

COMPOSITION OF CINCHONA.

The bark contains 21 natural alkaloids (of which 4 are official), 8 artificial alkaloids, 2 simple acids, 2 tannic acids, a resinoid and coloring-matter, as follows :—

Quinine, $C_{20}H_{24}N_2O_2$,—a strong base, fluorescent, the most valuable of all the alkaloids; heated with glycerin to 374° F., it is converted into the isomeric base *Quinicine*.

Quinidine, $C_{20}H_{24}N_2O_2$,—isomeric with Quinine, fluorescent, probably the most powerful as an antiperiodic, but existing in very small quantity.

Cinchonine, $C_{20}H_{24}N_2O$,—the least active of the official four, having about half the therapeutic power of Quinine. Not fluorescent.

Cinchonidine, $C_{20}H_{24}N_2O$,—isomeric with Cinchonine, not fluorescent, one of the most powerful of the alkaloids.

Kinic and Kinovic Acids,—are combined in the bark with the alkaloids. The former is used to make a Kinate of Quinine, and the latter occurs in non-official pharmacy as Kinovate of Lime, an ingredient in Deloudre's Extract, which is used in Europe and India for dysentery.

Kino-tannic and *Kinovo-tannic Acids*,—give to bark its peculiar and powerful astringent qualities. They have not been fully studied.

Kinovin,—is a bitter, amorphous resinoid, which is resolvable into Kinovic Acid and sugar. It is soluble in alcohol, but not in water.

Cinchona Red,—a reddish-brown, insipid, inodorous substance.

[The other alkaloids are of no interest medicinally.]

Preparations of the Bark.

Extractum Cinchonæ,—made from Yellow Cinchona. Dose, gr. j–v.

Extractum Cinchonæ Fluidum,—from Yellow Cinchona. Dose, ♏x–ʒj.

Tinctura Cinchonæ,—Yellow Cinchona, strength 20 per cent. Dose, ʒss–ij.

Tinctura Cinchonæ Composita,—made from Red Cinchona, strength 10 per cent. Contains Bitter Orange-peel 8, and Serpentaria 2 per cent. Dose, ʒj–℥ss.

Infusum Cinchonæ,—made from any official bark. Cinchona 6, Aromatic Sulphuric Acid 1, Water 93 parts. Is the only official infusion containing this acid. Dose, ʒj–℥j or more.

Huxham's Tincture of Bark, 1788 (Unofficial),—is still used. Red Cinchona ℥iv, Orange-peel ℥iij, Serpentaria gr. lxxx, Spanish Saffron gr. clx, Cochineal gr. lxxx, Brandy ℥xl, digested for 4 days, expressed and filtered. Dose, ʒss–ij.

Quinine and its Salts.

Quinina, Quinine, $C_{20}H_{24}N_2O_2.3H_2O$,—a white, amorphous or minutely crystalline powder, of alkaline reaction and very bitter taste, soluble in 1600 of water and 6 of alcohol at 59° F., in 25 of ether, 5 of chloroform, and readily in dilute acids. Dose, gr. j–xx, or xl in special cases. Is insoluble in saliva.

Quininæ Sulphas, Sulphate of Quinine $(C_{20}H_{24}N_2O_2)_2.H_2SO_4.7H_2O$,—very light, snow-white, fragile crystals, of very bitter, persistent taste, soluble in 700 of water and 65 of alcohol at 59° F., in 30 of boiling water, 3 of boiling alcohol, also in acidulated water. Dose, gr. j–xx, or even gr. xl in special cases.

Quininæ Bisulphas, Bisulphate of Quinine, $C_{20}H_{24}N_2O_2.H_2SO_4.7H_2O$,—clear, colorless, efflorescent crystals or small needles, of very bitter taste and strongly acid reaction, soluble in 10 of water with blue efflorescence, and in 32 of alcohol, at 59° F. Dose, gr. j–xxx, or even gr. lx in special cases.

Quininæ Hydrobromas, Hydrobromate of Quinine, $C_{20}H_{24}N_2O_2HBr.2H_2O$,—colorless needles, of very bitter taste, soluble in 16 of water and in 3 of alcohol at 59° F., and in 1 of boiling water or alcohol. Is the best salt for hypodermic use, ʒj of water dissolving gr. iv, which may be injected every 4 hours without causing irritation. Dose, gr. j–xx.

Quininæ Hydrochloras, Muriate of Quinine, $C_{20}H_{24}N_2O_2HCl.2H_2O$,—white needles in tufts, of very bitter taste, soluble in 34 of water and 3 of alcohol at 59° F., in 1 of boiling water or alcohol. Is used hypodermically. Dose, gr. j–xx. An excellent salt which should be more generally used; 5 to 10 gr. doses are antipyretic.

Quininæ Valerianas, Valerianate of Quinine, $C_{20}H_{24}N_2O_2C_5H_{10}O_2.H_2O$,—white, pearly crystals, of valerianic odor and bitter taste, soluble in 100 of water and in 5 of alcohol at 59° F. Dose, gr. j–iij. It is the only salt of Quinine supposed to be affected by the constituent acid.

Quininæ Hydrochloras Carbamidata, Carbamide Hydrochlorate of Quinine (Unofficial), —is a new compound salt of Quinine and Urea, soluble in equal parts of water and therefore admirably adapted for hypodermic administration in a 50 per cent. solution. It is almost unirritating to the tissues, and is given subcutaneously in doses of gr. j–iij.

Chininum Amorphum Boricum, Amorphous Borate of Quinine (Unofficial),—is a new preparation, soluble in an equal quantity of water, and claimed by its introducers to be equally as satisfactory as any other Quinine salt, and much better borne by the stomach than any other one. It is also said to cause little or no congestion of the membrana tympani.

Tinctura Pyrexialis, Warburg's Tincture (Unofficial),—is a celebrated preparation, formerly secret, but published in 1875 by the originator, whose formula is as follows:—℞. Aloes soc. ℔ j; Rad. rhei (chinens), Sem. angelicæ, Confec. Damocratis,* āā ℥iv; Rad. helenii (s. enulæ), Croci sativi, Sem. fœniculi, Cretæ prep., āā ℥ij; Rad. gentianæ, Rad. zedoariæ, Pip. cubebæ, Myrrhæ elect., Camphoræ, Bolet. laricis, āā ℥j. Digest the whole with 500 oz. of proof spirit in a water-bath for 12 hours, express, add ℥x Bisulphate of Quinine, dissolve by aid of a water-bath, cool and filter. Dose, ℥j, in two doses 3 hours apart. Hager's modification of the original formula is—℞. Quininæ sulph. part. j, Spt. camphoræ part. ij, Elix. proprietatis (Tinct. aloes et myrrhæ) part. xxij, Alcoholis part. xvj. The evidence published in favor of this preparation goes to show that its power does not wholly lie in the quinine, camphor, aloes or rhubarb, but in some of the aromatic plants contained in it.

Other Official Alkaloids and their Preparations.

Cinchonina, Cinchonine, $C_{20}H_{24}N_2O$,—white, lustrous prisms or needles, of bitter after-taste, almost insoluble in water, readily so in dilute acids and in 110 of alcohol at 59° F. Dose, gr. j–xxx or more.

Cinchoninæ Sulphas, Sulphate of Cinchonine $(C_{20}H_{24}N_2O)_2H_2SO_4.2H_2O$,—white, shining prisms, of very bitter taste, soluble in 70 of water and in 6 of alcohol at 59° F., and readily soluble in dilute acids. Dose, gr. v–xxx or more.

Cinchonidinæ Sulphas, Sulphate of Cinchonidine $(C_{20}H_{24}N_2O)_2H_2SO_4.3H_2O$,—white, silky crystals, of bitter taste, soluble in 100 of water and in 71 of alcohol at 59° F., freely soluble in acidulated water. Dose, gr. j–xx or more.

Quinidinæ Sulphas, Sulphate of Quinidine $(C_{20}H_{24}N_2O_2)_2H_2SO_4.2H_2O$,—white, silky needles, of bitter taste, soluble in 100 of water and in 8 of alcohol, readily in acidulated water, at 59° F. Dose, gr. j–xx or more. It is not so bitter as Quinine, is less expensive, and is a valuable antipyretic and antiperiodic.

Chinoidinum, Chinoidin, Quinoidin,—a mixture of alkaloids, mostly amorphous, obtained as a by-product in the manufacture of the crystallizable alkaloids from Cinchona. A black solid when cold, plastic when warmed, of bitter taste, almost insoluble in water, freely soluble in alcohol and in dilute acids. It contains the 4 alkaloids in amorphous condition, and has about ½ the therapeutic power of Quinine. Dose, gr. v–xxx or more.

Non-Official Preparations.

Quinquinina, or *Quinetum*,—is an Indian preparation containing the total alkaloids extracted from bark by acidulated water, then precipitated by soda and dried. In India it is called "febrifuge."

Cinchonidinæ Salicylas, Salicylate of Cinchonidine,—has anti-malarial power only inferior to the salts of Quinine.

SUBSTITUTES FOR QUININE.

The synthetical production of Quinine has been the "philosopher's stone" of the modern chemists, who have prosecuted with untiring energy the search for an artificial product possessing all its properties. Though in this they have as yet been unsuccessful, they have discovered several organic bodies, which closely resemble each other and also quinine, both in chemical constitution and physiological action. These substances belong to the aromatic series of carbon compounds, all of which are derivatives of *Benzene* or *Benzol*, C_6H_6, the Hydride of the organic radical *Phenyl*, C_6H_5. The distinctive action of the lower members of this series is their *antiseptic* and *antipyretic* powers,—as that of the fatty series of carbon compounds is *stimulant* and *anæsthetic* (Brunton). Many of these agents are obtained from coal-tar oil (petroleum) by fractional distillation, etc.,—and they are all derivatives of Benzene (Benzol), either directly or from some of the products formed therefrom, by substitution; various radicals replacing the different constituent atoms of H and C.

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* For the formula for this ingredient see the article on *Confections* in the section on Extemporaneous Pharmacy, Part II.

Thus, by the ring-arrangement of atoms peculiar to this series, there are formed from Benzene (C_6H_6), the following substances, viz.—
Phenol, or *Carbolic Acid*, C_6H_5OH—by replacing H by OH, (hydroxyl).
Pyrocatechin, or *Ortho-* $\left.\right\}$ $C_6H_4(OH)_2$.
Resorcin, or *Meta-* $\left.\right\}$ *di-hydroxy-benzene*,—by replacing 2H by 2OH.
Hydroquinone, or *Para-* $\left.\right\}$ $C_6H_4(OH)_2$.
Pyrogallol, *Pyrogallic Acid*, *Tri-hydroxybenzene*, $C_6H_3(OH)_3$,—3H by 3OH.
Amido-benzene, or *Anilin*, $C_6H_5.NH_2$—by replacing H by NH_2 (amidogen).
Nitro-benzene, $C_6H_5.NO_2$—by replacing H by NO_2 (nitroxyl).
Benzoic Acid, $C_6H_5CO.OH$—by replacing H by CO.OH (carboxyl).
Salicylic Acid, $HC_7H_5O_3$—by replacing 2H by OH and CO.OH.
Naphthaline, $C_{10}H_8$—by uniting 2 Benzines in an over-lapping ring.
Pyridine, C_5H_5N—by replacing tetrad C by triad N.
Chinoline, C_9H_7N—uniting Benzene (C_6H_6) and Pyridine (C_5H_5N).
Derived from Chinoline is the hypothetical base—
Chinicine or *Quinicine*, $C_9H_9N_2$,—represented in Antipyrine.
Also *Kairine*, *Thalline*, and other compounds.

The most important of these are Antipyrine, Acetanilide, Resorcin, Chinoline and Naphthaline, which are respectively described in separate articles. Others of the same class are the following, viz.—

Some Unofficial Antipyretics.

Kairina, Kairine (Hydrochlorate of Oxy-ethyl-chinoline-hydride), $C_{10}H_{13}NO.HCl.H_2O$,—is an artificial alkaloid prepared from Chinoline, belonging to the phenol group of carbon compounds, and a powerful antipyretic in 8-grain doses hourly. It stains the urine a deep green, and has not proven fatal though 220 doses have been administered in one case. In some cases of typhus it has caused cyanosis and collapse. It produces profuse sweating and vomiting, and the subsequent rise of temperature after its antipyretic influence has worn off is generally ushered in by a severe rigor. It is by many authorities considered to be the most certain, most powerful and most rapid antipyretic drug we possess, though this claim is now disputed by the advocates of Antipyrine. It occurs in white crystals, which are freely soluble in water, but is best given in wafer-paper or capsules. Dose, gr. iij–xxx.

Kairolina, Kairoline (Sulphate of Tetra-hydromethyl-chinoline),—is antipyretic, but much less efficient than Kairine.

Thalline (Parachinanisols),—is a synthetically prepared alkaloid, having the chemical name *Tetra-hydro-paramethyl-oxy-chinoline*. It occurs as a colorless powder, which is soluble in water, and enters into combination with acids, forming salts, of which the tartrate and sulphate are the most eligible, especially the latter. The dose of Thalline or its Sulphate ranges from gr. ij to gr. xv, a mean average dose being about 5 grains, given in the form of compressed tablets. Thalline is an antipyretic of very great power, doses of 5 to 12 grains lowering the temperature in typhoid fever 4° to 5°, in 2 hours' time, the effect lasting nearly 3 hours. In tuberculosis similar results were obtained. Large doses, however, produce very profuse sweating and a dangerous degree of depression; so that this agent is not a favorite remedy for hyperpyrexia.

Hydroquinone (Para-di-hydroxy-benzene) $C_6H_4(OH)_2$,—is isomeric with Resorcin (see *ante*, page 179). It crystallizes in rhombic, colorless prisms which are slightly soluble in water, readily so in alcohol and in ether, and is obtained from *Arbutin*, a glucoside constituent of Uva Ursi and other Ericaceæ. It is an efficient antipyretic, without injurious effects so far as observed, but its influence is only temporary. The action of this drug on animals is summarized in the *N. Y. Medical Record* for August 15th, 1885, and its influence on pyrexia elucidated in the same journal for May 30th, 1885. Dose, as an antipyretic, gr. xv–xx, best given in alcohol. Gr. xl have been given without disagreeable effects.

Pyrocatechin, Catechol (Ortho-di-hydroxy-benzene), $C_6H_4(OH)_2$,—is also isomeric with Resorcin, and is one of the acid constituents of coal-tar, also obtained from wood-tar and from kinic acid. It is a good antipyretic, but much inferior to Quinine or Resorcin.

Phenacetine (Para-Acetphenetidine),—a white and glossy, crystalline powder, in chemical constitution analogous to Acetanilide. It is tasteless, and but slightly soluble in water, more so in glycerin, and still more so in alcohol and in lactic acid. It is a very efficient antipyretic and antineuralgic, with no disagreeable after-effects. The dose is about one-half that of Antipyrine, or gr. x–xx.

Pheno resorcin,—is a mixture of Carbolic Acid 67 with Resorcin 33 and Water 10, forming a liquid which mixes readily with water. It is supposed to combine the virtues of both its ingredients.

Physiological Action.

The action of Cinchona in sufficient dose is generally that of its alkaloid Quinine, except that bark is decidedly astringent, more of a gastric irritant, and by reason of its bulk its active principles are more slowly absorbed. In large doses (ʒ ij) the powdered bark has produced flatulence and eructation, and in many well-authenticated instances has produced a well-marked febrile paroxysm, beginning with chill, then fever and headache, which gradually subsided in slight perspiration. So also, Quinine, while incapable of producing intermittent fever in a healthy person, will, if taken in large doses unnecessarily, throw the nervous system into high commotion, and if untimely used by a malarial subject may reproduce the paroxysm with greater or less severity.

Cinchona is an astringent bitter and a stomachic tonic. At first it promotes appetite, digestion, the flow of saliva and of gastric juice; long-continued it sets up a gastric catarrh, impeding digestion and causing constipation.

Quinine is a bitter tonic, antiseptic, antiperiodic, antimiasmatic and antipyretic, a diminisher of reflex action, a protoplasmic poison, a cardiac depressant and perhaps an oxytocic. It is rapidly diffused and slowly excreted, being found in the urine in 15 minutes after its administration and for two or three days afterwards. Its action on the stomach is similar to that of cinchona. It arrests the movements of the white blood-corpuscles though increasing their number, and prevents acetification and decay of the blood. It is actively destructive of lowly organized life, a solution of 1 to 500 being fatal to infusoria and fungi, while one of double this strength prevents alcoholic fermentation and checks putrefactive decomposition. The heart and arterial tension are somewhat stimulated by small doses, but depressed by large ones (gr. xl–lxxx), which slow and enfeeble the pulse by direct action on the cardiac ganglia. The brain is rendered hyperæmic and exhilarated by small or moderate doses, but large ones produce a sense of fulness and constriction in the head, cerebral anæmia, pallor, tinnitus aurium, vertigo, staggering gait, amaurosis and deafness, great headache, dilated pupils, delirium, coma, and in animals convulsions. The eyes and ears are very rarely injured permanently. These symptoms collectively are termed *Cinchonism*. It reduces the size of the spleen when enlarged, and lowers the temperature of pyrexia, though it does not depress the body temperature in health. Large doses lower the reflex function of the spinal cord. In some subjects it produces sexual excitement, in others cutaneous eruptions sometimes followed by desquamation. It lessens the excretion of uric acid, but not that of urea, and is a uterine stimulant in labor, but its power to initiate uterine contractions is a much debated question.

QUINIDINE and CINCHONIDINE correspond in action with Quinine both qualitatively and quantitatively, the latter however producing less severe head symptoms.

CINCHONINE also corresponds in effect, but is much the least active of the four alkaloids. It is said to produce greater headache, and much precordial pain and muscular weakness, but to have little effect on sight or hearing.

Antagonists and Incompatibles.

Morphine antagonizes its cerebral action. *Atropine* its nervous, cardiac and antipyretic powers. Free Tannic Acid is incompatible with the Infusion of Cinchona. Iodine preparations, Alkalies, Alkaline Carbonates and Earths, are incompatible with solutions of the alkaloids, the first-named forming insoluble compounds, the latter precipitating them.

THERAPEUTICS.

CINCHONA is used as a tonic and has many applications. The Infusion or Compound Tincture with a mineral acid is extremely serviceable in atonic dyspepsia, gastric catarrh of alcoholics, adynamia, convalescence, asthma, chronic bronchitis, and generally in weak subjects of flabby flesh and perspiring skin.

QUININE finds its principal field of action in the malarial diseases, over which its power is that of a specific. In intermittents, a ten-grain dose of the sulphate should be given in the sweating stage and again 5 hours before the expected time of the next paroxysm. In the intervals Arsenic is better used, as Quinine will cause a daily exacerbation of temperature if long continued. In remittents 20- to 30-grain doses should be administered once or twice a day until the temperature is reduced to the normal point. In pernicious remittents large doses (gr. xxx to lx) are necessary to the safety of the patient. In chronic malarial poisoning Quinine has considerable power, but Chinoidin is more effective. Small doses of Quinine (gr. ij–iij per diem) are efficient as a prophylactic against malaria.

As an antipyretic Quinine is used with the best results, especially in typhus, typhoid, variola, pneumonia and acute rheumatism. Inflammations may, at their inception, be aborted by 15- or 20-grain doses, combined with Morphine, which in this respect is synergistic to Quinine. Acute tonsillitis and acute catarrh may sometimes be aborted by a full dose. In surgical fevers, pyæmia and exhausting suppurative conditions, also in septicæmia, hectic fever, and before surgical operations, Quinine is much employed. Neuralgias of malarial origin are amenable to it, as also neuralgia of the ophthalmic division of the fifth nerve. In eruptive fevers, especially scarlet fever, erysipelas and measles, it is advantageously administered throughout their course. In some skin diseases, particularly erythema nodosum, it is quite efficient, also in whooping-cough and hay-fever. In the latter affection a solution of gr. vj to the ℥ of the neutral hydrochlorate is a very useful local application.

ANTIPYRESIS has of late received considerable attention, particularly in the German hospitals. The most certain and safe of all antipyretics is undoubtedly the cold bath, but it is not always the most practicable, especially in private practice. Internal antipyretics are therefore of great value, and of these the safest and best is Quinine, next in order being Antipyrine.

WARBURG'S TINCTURE has obtained a very high reputation in the hands of Indian army-surgeons in the treatment of remittent and other malarial fevers of the most malignant types, in malarial neuralgiæ, acute nervous exhaustion and sudden collapse without organic disease. The most pronounced testimony to its value is that of Dr. Maclean (*Med. Times and Gazette*, Nov., 1875), whose authority will not be questioned by the most captious. He affirms that the influence of this combination to arrest an exacerbation of remittent fever is far more powerful than that of Quinine alone. The remedy has become much less of a favorite since its originator was induced to make public the secret of its composition.

Administration.

The persistently bitter taste of Quinine and its salts is best obviated by administering them in pill-form, made with glycerin as an excipient, or by using Liquorice, Eriodyction or Chocolate to cover the taste if given in solution or powder. The taste is extremely well covered by using as a vehicle a combination of Glycyrrhizin and Fluid Extract of Eriodyction, named "*Velatine*," but the Quinine must be suspended therein by the aid of mucilage, as when an acid is used to dissolve it the bitter taste cannot be disguised.

For hypodermic use the best salt is the Hydrobromate, it being the most soluble,—gr. xij in ℥j of distilled water gives gr. j in ♏v. The Carbamide Hydrochlorate is coming into favor for hypodermic administration by reason of its solubility and freedom from irritating qualities.

CINNAMOMUM, Cinnamon,—is the inner bark of the shoots of *Cinnamomum Zeylanicum* (Ceylon), or the bark of the shoots of several species of *Cinnamomum* (nat. ord. Lauraceæ) grown in China

(Cassia Bark). The former occurs in light, yellowish-brown quills, consisting of several pieces rolled together, each very thin, while the Chinese variety comes in single quills of irregular form and rougher texture. The taste is warm and aromatic, and the odor very fragrant. The active principle is a *Volatile Oil*, and it also contains a resin, tannic and cinnamic acids. Dose, gr. x–xx.

Preparations.

Oleum Cinnamomi,—is the volatile oil, a yellowish-colored liquid of sp. gr. 1.040 to 1.060, becomes dark by age, of slightly acid reaction. The oil of Chinese cinnamon is not so agreeable in odor or taste. Dose, gtt. j–v.

Aqua Cinnamomi, Cinnamon-Water,—has of the oil 2 parts in 1000, percolated through cotton. Dose, indefinite.

Spiritus Cinnamomi,—contains 10 per cent. of the oil. Dose, ♏v–xxx.

Tinctura Cinnamomi,—contains 10 per cent. of the powdered bark. Dose, ʒss–ij.

Pulvis Aromaticus, Aromatic Powder,—Cinnamon 35, Ginger 35, Cardamom 15, Nutmeg 15, rubbed together in fine powder. Dose, gr. x–xxx.

Extractum Aromaticum Fluidum,—has of Aromatic Powder 100 grammes, Alcohol q. s. ad 100 cubic centimeters. Dose, ♏x–xxx.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Cinnamon is an agreeable carminative, somewhat astringent and stimulant, and highly aromatic. The oil is not astringent but is a pleasant stimulant to the nervous and vascular systems, and is by some believed to exercise a specific action on the uterus, particularly as a hemostatic.

The various preparations are in general use as flavoring excipients, and the aqua is a pleasant vehicle for extemporaneous prescriptions. The bark and its preparations are used to check diarrhœa in combination with opium, chalk, or some vegetable infusion. The oil is a good stimulant in flatulence, paralysis of the tongue, cramp of the stomach, enteralgia, etc., and is sometimes used to check nausea and vomiting. Cinnamon was formerly used with success in uterine hemorrhage, generally in combination with sulphuric acid which of itself is an efficient uterine hemostatic.

COCCUS, Cochineal,—is the dried female of *Coccus cacti*, an insect of the order Hemiptera, which feeds on the cactus plants of Mexico and Central America. Occurs in ovate, plano-convex form, of a purple-gray or purple-black color, yielding when crushed a dark-red powder, which contains *Carminic Acid*, or *Carmine*, the red coloring-matter, which is soluble in water and alcohol, but not in oils. Cochineal is an ingredient of Tinctura Cardamomi Composita, and is used in pharmacy solely as a coloring material.

THERAPEUTICS.

The only therapeutic use of Cochineal is in whooping-cough and neuralgia, in which affections it is supposed to have considerable influence, especially in the former. Its dose to an infant is about gr. ⅓ thrice daily.

COLCHICUM, Meadow Saffron,—is the corm and seed of the *Colchicum autumnale*, a European plant of the nat. ord. Melanthaceæ. It contains an intensely bitter, poisonous alkaloid, *Colchicine*, $C_{17}H_{19}NO_5$, which by the action of acetic and mineral acids is converted into *Colchiceïne* and a resin,—also tannic and gallic acids, resin, starch, sugar, etc. It is official in two forms, namely—

COLCHICI RADIX, Colchicum Root,—the corm, about 1 inch long, white internally, grooved on one side, inodorous, taste sweetish, bitter and acrid. Is less active than the seed. Dose, gr. ij–viij. Contains of Colchicine, 0.45 per 1000.

COLCHICI SEMEN, Colchicum Seed,—about $\frac{1}{12}$ inch thick, sub-globular, resembling black mustard seed but larger, very hard and tough, inodorous, of bitter and acrid taste. Dose, gr. j–v. Contains of Colchicine, 3.35 per 1000.

Preparations.

Extractum Colchici Radicis,—made with Acetic Acid 35 parts to 100 of the root, and sufficient water. Dose, gr. ½–ij.

Extractum Colchici Radicis Fluidum,—Dose, ♏ij–x.

Extractum Colchici Seminis Fluidum,—Dose, ♏j–v.

Vinum Colchici Radicis,—strength 40 per cent. Dose, ♏v–xv.

Vinum Colchici Seminis,—strength 15 per cent. Dose, ♏x–xxx.

Tinctura Colchici,—from the seed, strength 15 per cent. Dose, ♏x–xxx.

Colchicina, Colchicine, $C_{17}H_{19}NO_5$ (Unofficial),—a white or yellowish, amorphous powder, of saffron-like odor and bitter taste, soluble in water and in alcohol. Dose, gr. $\frac{1}{120}$–$\frac{1}{60}$. Is suitable for hypodermic injection.

Laborde and Houdé condemn all preparations made with acetic acid, also those made from the tubers and all wines. The best preparation is Colchicine, in granules or in a wine; or a strong tincture made from fresh seed with the shell on, the latter containing a very volatile but active oil. Of this seed ℥j to ½ pint of highest proof alcohol, standing for 2 weeks. Of this ʒv to water q. s. ad O½, of which the dose is ℥ss every 4 hours night and day, avoiding acids, until nausea, vomiting and purging set in.

PHYSIOLOGICAL ACTION.

Colchicum is emetic, diuretic and diaphoretic, a drastic purgative, a gastro-intestinal irritant and a cardiac depressant. In small doses it increases secretion, especially the urine and the sweat. In full doses its action is emeto-cathartic, producing profuse watery discharges, great nausea and extreme muscular feebleness. In large doses it is a powerful irritant of the gastro-intestinal tract, causing severe griping, choleraic discharges, lowered arterial tension and depression of the heart by reflex action over the distribution of the pneumogastric,—then great prostration, convulsions and collapse, death occurring from exhaustion, with consciousness preserved until carbonic acid narcosis sets in. On the excretion of uric acid and urea its influence is very much disputed, but it probably increases the flow of bile, and certainly unloads the portal circulation.

Antagonists and Incompatibles.

Tannic Acid to retard absorption. Emetics and cathartics, also warm demulcent drinks freely. *Morphine* hypodermically to antagonize the cardiac depression, also Alcohol.

THERAPEUTICS.

Colchicum is a specific palliative in gout of acute form, in which it should be given with an alkali, and kept short of emeto-catharsis. It does not prevent relapses, and its power in this disorder is weakened by repetition. In ascites from obstructive disease of the liver it is most effective, given in full doses to establish a profuse drain, with opium to sustain the heart. In acute cerebral congestion and in portal congestions it is well given as a drastic purgative. It is often used with marked success in acute rheumatism, but frequently fails, and in no case should it be continued long in this affection. It has been used with good results in the treatment of gonorrhœa and chordee. The alkaloid is probably the best preparation for general use, and is admittedly superior to the other preparations in acute gout.

COLOCYNTHIS, Colocynth,—is the fruit of *Citrullus Colocynthis*, deprived of its rind. The plant is a native of Spain and Asiatic Turkey, and belongs to the nat. ord. Cucurbitaceæ, the fruit being of the size of a small orange, white, light, spongy, inodorous, very bitter, containing many flat, brown seeds which should be rejected before the pulp is used. Its active principle is *Colocynthin*, $C_{56}H_{84}O_{23}$, an amorphous but crystallizable bitter glucoside, readily soluble in water. It also contains *Colocynthein*, a resin, and *Colocynthitin*, which is a tasteless, crystalline powder, soluble in ether but not in water, and devoid of purgative action.

Preparations.

Extractum Colocynthidis,—alcoholic. Dose, gr. ½–ij.

Extractum Colocynthidis Compositum,—contains of the preceding 16 parts, Aloes 50, Cardamom 6, Resin of Scammony 14, Soap 14, Alcohol 10. Dose, gr. v–xx.

Pilulæ Catharticæ Compositæ, Compound Cathartic Pills,—each has of the preceding gr. 1.3, Abstract of Jalap gr. j, Calomel gr. j, Gamboge gr. ¼. Dose, j–iij pills.

Laville's Anti-Gout Remedy,—is a proprietary medicine prepared in France and purporting to be "a mixture of prepared Kino-colocynthine." The published formula is as follows: Active principle of Colocynth 2½, Quinine and Cinchonine 5, Spanish Wine 800, Alcohol 100, Water to 1000 parts; but there is good reason for believing that it contains *Colchicine* instead of Colocynthin.

PHYSIOLOGICAL ACTION.

Colocynth is classed among the tonic-astringent and resin-bearing purgatives. In moderate doses it increases peristalsis and the intestinal glandular secretions, producing bilious, watery evacuations with much colicky griping pain. Its purgative action is specific, and may be obtained by its application to the skin over the abdomen. In large doses it is a violent irritant of the gastro-intestinal tract, and has frequently produced fatal gastro-enteritis. It is popularly supposed to be abortifacient, but this is only true of quantities sufficient to endanger life. It is an indirect diuretic.

THERAPEUTICS.

Colocynth is too severe an agent to be administered alone for constipation, but it makes a useful factor in compound purgatives, as the compound cathartic pill. In cerebral congestion it may be used to produce rapid derivation, and in ascites to set up a profuse drain from the intestinal canal. In certain cases of chlorotic amenorrhœa it stimulates the pelvic nerves and vessels with excellent results. There seems to be abundant evidence that in very small doses (♏$\frac{1}{20}$–$\frac{1}{10}$ of a tincture) colocynth is an efficient remedy in colic, sciatica, ovarian and other neuralgiæ, as well as in the pain of glaucoma. These actions may be due to its two non-purgative principles, which may prove to possess powers not heretofore suspected, an example of which is seen in the recently-discovered cardiac influence of Convallaria, a drug until recently only known as a purgative and a diuretic.

CONIUM, Hemlock,—is the full-grown fruit, gathered while green, of *Conium maculatum*, the spotted hemlock (nat. ord. Umbelliferæ). It is smaller than anise-fruit, of a gray-green color, slight odor and taste, and contains 3 alkaloids, namely,—*Coniïne*, $C_8H_{15}N$, liquid and volatile, *Methyl-coniïne*, $C_8H_{14}NCH_3$, and *Conhydrine*, $C_8H_{17}NO$, solid and volatilizable;—also Coniic acid and a volatile oil. *Paraconiïne* is an artificial substance produced by the reaction between Butyric Aldehyd and an alcoholic solution of Ammonia, and isomeric with Coniïne but not identical with it. The leaves of Conium are no longer official.

Preparations.

Abstractum Conii,—made from 200 parts of Conium, 6 of Dilute HCl acid, Sugar of Milk and Alcohol to make 100 parts; each grain representing 2 grains of the powdered drug. Dose, gr. ss–iij.

Extractum Conii Alcoholicum,—each grain represents a grain of the crude drug. Dose, gr. ij–v–xl.

Extractum Conii Fluidum,—of the same strength as the alcoholic extract. Dose, ♏ij–v–xl.

Tinctura Conii,—strength 15 per cent. Dose, ♏x–ʒj, beginning with the 10-minim dose and gradually increasing until physiological effects are manifest.

Coniïna, Coniïne, $C_8H_{15}N$ (Unofficial),—an oily, limpid, volatile liquid, of acrid taste, alkaline reaction, and an odor compared to that of the urine of mice. It is quickly decomposed by heat, and if exposed to the air soon becomes inert. Dose, gr. $\frac{1}{60}$–$\frac{1}{10}$, or in minim-doses, ♏$\frac{1}{10}$–ij. Is too irritant for hypodermic use, unless carefully neutralized by acetic acid. The Hydrobromate in watery solution of gr. viij to the ℥, of this ♏x–$\frac{1}{8}$, is a good form for subcutaneous or stomachal administration, and may be given in doses of gr. $\frac{1}{12}$ to gr. j, as it is not actively toxic.

All the preparations of Conium are uncertain in action, particularly the extract and abstract, as the active principle is very volatile. Any specimen must be carefully tested before deciding on its dosage, and if the powerful mouse-like odor of the drug be absent, it is probably worthless.

PHYSIOLOGICAL ACTION.

The special action of CONIUM and CONIÏNE is the production of motor paralysis without loss of consciousness or sensation. It paralyzes the motor nerves, the action commencing at the peripheral end-organs and extending upwards, involving the nerve-trunks and finally the centres, but the muscular irritability remains unaffected. METHYL-CONIÏNE acts similarly but reversely, affecting first the motor columns of the cord. The sensory nerves are not affected, but the general sensibility is, a feeling of numbness being experienced in the extremities.

Gastric irritation is usually the first sensation produced by a full dose of Conium, nausea and vomiting being its symptoms. Then weakness of the legs, numbness and fatigue, drooping eyelids, diplopia, slightly dilated pupils, vertigo, impaired utterance, slow and labored breathing, and if the dose be a lethal one, paralysis of the voluntary muscles, those of the lower limbs being first affected, speech and vision are lost, and finally death occurs from paralysis of the muscles of respiration. The heart is not affected and the mind remains clear, but torpid and indifferent, until carbonic acid narcosis sets in.

Muscular movement counteracts the effects of the drug to a very great extent.

Conium is believed to have been the state poison of the Athenians, by the juice of which Socrates and Phocion died.

Antagonists and Incompatibles.

Nux Vomica and its alkaloids, *Picrotoxin* and other tetanizers are antagonistic. Tannic acid and caustic alkalies are chemically incompatible.

THERAPEUTICS.

Conium is especially indicated in diseases characterized by excessive motor activity. Large doses are required as some physiological action is necessary. Children bear it well, their constant activity preventing its full action. In chorea it palliates by depressing the motor nervous system. In acute mania and delirium tremens to quiet motor excitement and prevent exhaustion, it is remarkably efficient, especially when given conjointly with Morphine. When pain and spasm are present, it will prove a useful agent; and in tetanus, blepharospasm, asthma, whooping-cough, and other spasmodic affections it is frequently used with great benefit. The pain of cancer seems to be especially amenable to its influence when locally applied, and Coniïne-vapor is an admirable palliative of the tickling cough of phthisis and the irritability of the air-passages in acute bronchitis. In pneumonia and pleurisy the hypodermic use of Coniïne to afford the organs rest by inducing a paretic state of the respiratory muscles has been followed by a marked decrease in the temperature and pulse-rate.

CONVALLARIA MAJALIS, Lily of the Valley (Unofficial),—is a stemless perennial of the nat. ord. Liliaceæ, indigenous to Europe, Northern Asia and the Southeastern portion of the United States. All parts of the plant are used, but the preparations vary in action according to the quantity of the Resin present, it being emeto-cathartic. Convallaria contains two glucosides, namely, *Convallamarin*, on which the cardiac action depends, and *Convallarin*, a crystalline, purgative principle, insoluble in water;—also an acrid *Resin* which probably contains the latter glucoside.

Preparations.

Extractum Convallariæ (Unofficial),—prepared from the flowers and stalks with ⅓ of the leaves and root; is a black solid, freely soluble in water and alcohol. Dose, gr. ij–x.

Extractum Convallariæ Fluidum (Unofficial),—as found in the shops is an alcoholic preparation of the whole plant, and is likely to contain Convallarin, which is not present in aqueous preparations, being insoluble in water. Dose, ♏ij–x.

Infusum Convallariæ (Unofficial),—prepared from the flowers, leaves and stems 25, in water 75. Dose, ℥ss–ij.

Convallamarinum, Convallamarin, $C_{23}H_{44}O_{12}$ (Unofficial),—an amorphous, white, bitter powder, freely soluble in water and in alcohol, but insoluble in ether. Dose, gr. ¼–ij.

PHYSIOLOGICAL ACTION.

CONVALLARIA has long been known as a decided cathartic and a prompt and powerful diuretic, but its cardiac action has only lately excited attention, and it is now considered a close analogue of Digitalis, while free from the cumulative action which makes the latter drug so frequently a dangerous remedy.

Preparations of the root have a powerful emeto-cathartic action, probably due to a preponderance of the resin. Those freed from this ingredient correspond in action with Convallamarin, stimulate the appetite without impairing digestion, increase peristalsis without producing catharsis, slow the heart and raise the arterial tension, also slowing and deepening respiration. Lethal doses at first produce irregularity of the cardiac action and spasm of the respiratory muscles, high arterial tension and a very rapid pulse,—followed by lowered blood-pressure, very slow and deep breathing, and finally arrest of the heart in systole. Its mode of action is by direct stimulation of the pneumogastric, the motor and sensory nerves retain their irritability, the muscles preserve their contractility, and the cerebral functions and the pupil are unaffected.

CONVALLARIN is a drastic purgative in 3-grain doses. CONVALLAMARIN is an emetic even in small quantity, and the powdered root is sternutatory.

THERAPEUTICS.

Convallaria is a heart-tonic like Digitalis, and is indicated in the same class of cases as is that drug, with the advantage that having no cumulative action it is not dangerous to the heart in medicinal doses, and does not disturb the stomach or the functions of the cerebro-spinal axis. In doses of gr. xv–xxv of the extract it slows the action of the heart and increases the force of its contractions, raises arterial tension, augments the force and volume of the respiration, and produces prompt diuresis without altering the composition of the urine. It is a most valuable remedy in mitral stenosis or insufficiency with venous stasis, dilatation of the heart, palpitation, vehement cardiac action or disordered rhythm, and in all valvular affections accompanied by dropsy and a weak heart. It has also been used with benefit in pneumonia, typhoid fever and renal dropsy. Its action is maintained for several days after its use has been suspended.

COPAIBA, Balsam of Copaiba,—is the oleoresin of *Copaifera Langsdorffii*, and of other species of *Copaifera*, a S. American tree of the nat. ord. Leguminosæ, growing chiefly in the valley of the Amazon. It is a translucent, viscid liquid, of yellow color, aromatic odor, acrid and bitter taste, not fluorescent, soluble in alcohol and benzol. Is not a balsam as it contains no cinnamic acid. Its constituents are a *Volatile Oil* and a *Resin* in about equal proportions, the latter containing nearly 99 per cent. of *Copaibic Acid.* Dose, ♏x–ʒj.

Preparations.

Oleum Copaibæ, $C_{10}H_{16}$,—the volatile oil, a pale yellow liquid, of sp. gr. 0.890, of bitter taste and neutral reaction, soluble in an equal weight of alcohol. Dose, ♏x–xv.

Resina Copaibæ,—is the residue left after distilling off the volatile oil from Copaiba, a yellowish, brittle body, of acid reaction, soluble in alcohol, benzol or amylic alcohol. Consists mainly of Copaibic Acid, which is crystallizable, also 1½ per cent. of a viscid resin. Dose, gr. j–v.

Massa Copaibæ,—consists of Copaiba 94, fresh Magnesia 6 parts, mixed and set aside to concrete into a pilular mass. Dose, ♏x–ʒj.

Mistura Copaibæ Composita, Lafayette's Mixture (Unofficial),—℞. Copaibæ ʒvij, Ol. Cubebæ ʒj, Glyceriti Vitelli ʒvij. Triturate and add gradually while triturating Syrupi Aq. Menth. Piperitæ ℥ijss. Then add with constant stirring Liq. Potassæ ℥ss, Tr. Cardamomi Co. ʒij, Spt. Etheris Nitrosi ℥ss, Aq. Menthæ Pip. q. s. ad ℥viij. Dose, ʒj–℥ss.

PHYSIOLOGICAL ACTION.

Copaiba is a stimulant diuretic, diaphoretic, expectorant, and a gastro-intestinal irritant. Its taste is bitter and nauseous. In the stomach it causes heat, unpleasant eructations, heaviness, frequently anorexia and diarrhœa, and if continued for any length of time gastro-intestinal catarrh and desquamative nephritis may result. The oil and resin diffuse into the blood and are excreted by the bronchial mucous membrane, skin and kidneys, producing increased secretion at the points of elimination. The various secretions have the odor of the drug, especially the urine. In medium doses it increases the quantity of urine and its solid constituents, but large doses will cause scanty urine, containing albumen, casts and blood, with pain in the loins and other signs of renal congestion. On the skin it often produces itching and several forms of eruption.

THERAPEUTICS.

Copaiba has been largely used in gonorrhœa after the acute symptoms have subsided, also in chronic cystitis, acute and chronic bronchitis, and in dropsies, particularly ascites. In all these affections it is a useful remedy, but its nauseous taste and irritant effects on the stomach are driving it out of fashion, especially in private practice. One eminent surgeon declares that not only is it useless in gonorrhœa but that it does more harm than good, often prolonging the disease beyond its natural limit. In psoriasis and urticaria, and in cutaneous affections characterized by torpid peripheral circulation, this drug has been administered internally with excellent results. In long-standing cystitis in the female Copaiba has been injected into the bladder with great benefit. The resin is the most active ingredient, especially for diuretic purposes.

CORIANDRUM, Coriander,—is the fruit of *Coriandrum sativum*, a European plant of the nat. ord. Umbelliferæ. It is a minute, globular, brownish-yellow body, finely ribbed, of aromatic odor and taste, and contains a volatile and a fixed oil. Dose, gr. x–xx.

Preparation.

Oleum Coriandri,—the volatile oil. Dose, ♏ij–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Coriander is stimulant, aromatic and carminative. It is used almost wholly as a flavoring to other remedies, or as a corrective against the griping effects of certain purgatives. Its flavor covers the taste of Senna and Rhubarb, and it is an ingredient of the official Confectio Sennæ.

CORNUS, Dog-wood,—is the bark of the root of *Cornus florida*, a small tree of the nat. ord. Cornaceæ, indigenous in the U. S. Occurs in reddish-brown, curved pieces, of astringent, bitter taste, and contains a bitter principle named *Cornin*, which is crystallizable and soluble in water and alcohol; also a resin and tannic acid.

Preparation.

Extractum Cornus Fluidum,—Dose, ♏x–ʒj.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Cornus is a simple bitter, having stomachic and other qualities similar to those of Calumba (which see). In addition it is possessed of considerable antiperiodic power, and has a good deal of reputation in the Southern States as a remedy in malarial fever, the physicians of that section considering it as next to Quinine in efficiency. Heat destroys its active principle, consequently a decoction is a useless preparation.

COTO, Coto Bark (Unofficial),—is the bark of some unknown tree growing in Bolivia, from whence it comes in brownish pieces of aromatic odor and acrid, bitter taste. It contains an acrid, bitter principle, of yellow color, crystalline and soluble in hot water and alcohol, named *Cotoin*, $C_{22}H_{18}O_6$; also *Piperonylic Acid*, $C_8H_6O_4$, and a volatile oil, resin, etc., but no tannin. Dose, gr. j–xv.

PARACOTO BARK, or False Coto,—is thicker than the true bark, has a fainter odor and taste, and is marked by whitish furrows on its surface. Its principle, *Paracotoin*, $C_{19}H_{12}O_6$, has a strong similarity to Cotoin therapeutically, but is less active.

Preparations.

A fluid extract of the official strength is prepared, also a tincture (10 per cent.), which may be administered in doses of from ♏j–xx. Cotoin is used in doses of gr. j–iv, and Paracotoin in somewhat larger quantities.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The physiological action of Coto has not been studied, all that is known about it being that it is decidedly irritant to the skin and mucous membranes. After its internal administration the urine takes a dark-red color with Nitric Acid. Ferric Chloride blackens a dilute solution of Cotoin, but has no reaction with Paracotoin.

The bark and both principles are highly recommended in diarrhœas of various forms, especially those of phthisis, typhoid fever, and cholera. In Asiatic cholera Paracotoin has been used hypodermically in 3-grain doses with success. Where there is any tendency to acute inflammation of the gastro-intestinal tract this agent must be used with caution. Small doses of the tincture (♏j–v) are said to be very effective in the diarrhœa of children.

CREASOTUM, Creasote,—is a product of the distillation of wood-tar, chiefly consisting of the four phenols, *Guiacol*, *Creasol*, *Methyl-creasol* and *Phlorol*, in varying proportions. It is a nearly colorless, inflammable, oily liquid, of smoky odor, caustic taste and neutral reaction, soluble in 80 of water at 59° F., in 12 of boiling water, and in all proportions in alcohol, ether, chloroform and acetic acid. It does not coagulate albumen (?) or collodion, Carbolic Acid does. It was named from its remarkably preservative power over meat, *κρεάς*, *flesh*, and *σώζω*, *I preserve*. Much of the commercial Creasote is an impure Carbolic Acid, or a heavy oil distilled from coal-tar and containing Carbolic and Cresylic Acids. Dose, ♏j–iij, well diluted.

Preparations.

Aqua Creasoti,—a 1 per cent. solution, containing ♏iv$\frac{1}{10}$ in each fluidounce. Dose, ℥j–iv.

Morson's Beechwood Creasote,—is best for internal use. Dose, ♏j every 3 hours, in wine or whiskey, well diluted.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Creasote is expectorant, astringent, antiseptic, styptic, escharotic, a æsthetic and narcotic. Its action is practically the same as that of C bolic Acid (see *ante*, page 60), especially upon the heart, respiration a nervous system, but differs from that of the latter in not causing conv sions, and in increasing the coagulability of the blood. It is eliminat by the kidneys and bronchial mucous membrane, which it stimulat being quite a good expectorant. In small doses it seems to have a sel tive sedative influence on the terminal nerve-filaments in the gast mucous membrane. In large doses it is a powerful poison, resembli Carbolic Acid in its symptoms, except that its nervous effects are ev more marked. It explodes when combined with Oxide of Silver in p unless previously diluted with an inert powder.

THERAPEUTICS.

Being a very complex substance of varying composition Creasote as therapeutic agent has been almost entirely supplanted by Carbolic Ac It is used internally with success in reflex nausea and vomiting, as fr sea-sickness, pregnancy, cholera, etc., also as an aseptic and expectora in chronic basilar cavity, in which it seems to have greater efficacy th any other remedy. As an astringent it has been employed in intesti hemorrhage, gonorrhœa and gleet, and generally in the same affections Carbolic Acid. Externally it is a good application in eczema, prurit ulcers and scaly skin diseases, and it effectually relieves the pain of exposed dental nerve if applied thereto. It is a good agent by inhalati in chronic bronchitis and gangrene of the lung, and it has lately be administered internally in phthisis with decided benefit.

CROCUS, Saffron,—the stigmas of *Crocus sativus*, a plant of t nat. ord. Iridaceæ, cultivated in Europe, containing a volatile oil a coloring matter. Occurs as separate stigmas or three attached to the sty of orange-brown color, peculiar, aromatic odor, and bitter taste. called American Saffron is not Crocus but the flowers of *Carthamus ti torius*. True Saffron is expensive, as it requires about 60,000 flowers furnish one pound of the stigmas. Dose, gr. v–xx, in infusion.

Preparations.

Tinctura Croci,—10 per cent. Dose, ʒj–ij.

Saffron Tea, so much used in domestic practice, is an infusion of *Carthamus t torius*, or Safflower.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Crocus is a stimulant aromatic, having some antispasmodic and anod qualities. The hot infusion produces diaphoresis, probably by virtue the hot water alone. It is said to have caused death with narcotic symptoms. On the continent of Europe it is employed as a stimulant and emmenagogue, but in this country its only use is as a coloring agent. The miscalled Saffron Tea noted above is used in domestic practice for measles and other exanthemata.

CUBEBA, Cubeb,—is the unripe fruit of *Cubeba officinalis*, a plant of the nat. ord. Piperaceæ, cultivated in Java. Occurs as a blackish-gray, wrinkled, globular body, about the size and shape of black pepper, of strong, spicy odor, and aromatic, pungent taste. Contains a *Volatile Oil*, which is official, an acrid resin composed in part of *Cubebic Acid*, also a fatty oil, gum, and *Cubebin*, which is an insoluble, neutral, odorless and tasteless body. The volatile oil may be separated into *Cubebene* a camphor, and *Cubeben* a liquid portion. The active principles are the volatile oil and the cubebic acid, both of which are contained in the oleoresin. Cubeb should be kept whole and not pulverized until wanted for use. Dose of the powdered drug, gr. x–ʒ ij.

Preparations.

Extractum Cubebæ Fluidum,—alcoholic. Dose, ♏v–xxx.

Tinctura Cubebæ,—10 per cent. Dose, ♏x–ʒ iij.

Oleoresina Cubebæ,—extracted by ether. Dose, ♏v–xxx.

Trochisci Cubebæ,—each contains of the Oleoresin gr. ½, Oil of Sassafras gr. 0.15, Extract of Glycyrrhiza gr. iv, Acacia gr. ij, and Syrup of Tolu q. s. to form a mass. Dose, j–iij.

Oleum Cubebæ, $C_{15}H_{24}$,—is the volatile oil, a colorless or pale greenish yellow liquid, of sp. gr. 0.920, warm, aromatic taste, odor of cubeb and a neutral reaction. Is soluble in an equal weight af alcohol. Dose, ♏v–xx.

PHYSIOLOGICAL ACTION.

Cubeb belongs to the pepper family, and like black pepper is an aromatic stomachic and a stimulant diuretic in small or medium doses, but large doses derange digestion and may act as a gastro-intestinal irritant. Its constituents are eliminated by the bronchial mucous membrane, the skin and the kidneys, stimulating and disinfecting the genito-urinary passages, increasing the bronchial mucus, sweat and urine, and frequently causing an urticarial or vesicular eruption. It increases the action of the heart and of the vascular system, stimulates the venereal appetite, and promotes the menstrual discharge.

THERAPEUTICS.

Cubeb is particularly useful in affections of the bladder and urethra. It is used in the acute stage of gonorrhœa, chronic cystitis, prostatorrhœa and chronic bronchitis with excellent results. The powder is a good application in hay-fever, chronic nasal catarrh and follicular pharyngitis, blown on to the mucous membrane by an insufflator. It may also be smoked in cigarettes with temporary relief in cases of acute nas catarrh with "stuffed" nasal passages. In some subjects the continue use of cubeb produces nausea, hemorrhoids, hematuria and severe heac ache. The troches are a useful preparation in chronic irritability of th fauces, pharynx and air-passages, and are much employed by singers an public speakers for their tonic effect on these parts and for the relief o prevention of hoarseness.

CUPRUM, Copper, Cu,—is not official, but two of its salts are, namely the Acetate and the Sulphate. The metal itself is inert, but in combination it is actively poisonous. Copper has been found in the normal human blood in very minute quantity.

Salts and Preparations of Copper.

Cupri Acetas, Acetate of Copper, $Cu(C_2H_3O_2)_2.H_2O$,—forms green, prismatic crystals, efflorescent, of nauseous, metallic taste and acid reaction, soluble in 15 of water anc 135 of alcohol at 59° F. Its aqueous solution is of a blue color. Dose, gr. $\frac{1}{16}$–¼.

Cupri Sulphas, Sulphate of Copper, $CuSO_4.5H_2O$,—blue, translucent crystals, efflorescent, of nauseous, metallic taste and acid reaction, very soluble in water, insoluble i alcohol. Its solution is blue by transmitted light, green by reflected light. Dose, as a emetic, gr. ij–v, every 10 or 15 minutes,—as a tonic, gr. ⅙–½.

Solution of Potassio-Cupric Tartrate, Fehling's Solution (Unofficial), used as a reagen for glucose, may be made as follows,—Dissolve 70 grains of Sulphate of Copper in 40 minims of Distilled Water. Also dissolve 488 grains of Rochelle Salt (Pot. et Sodi Tart.) in 1600 minims Solution of Soda (Liq. Sodæ), sp. gr. 1.12. When required fo use pour the copper solution into the other, and add distilled water to make 2720 minim (℥5⅔).

Cuprum Ammoniatum, Ammoniated Copper (Unofficial),—is made by triturating parts of Ammonium Carbonate with 4 of Cupric Sulphate until effervescence has ceased then drying. A deep azure-blue powder, of ammoniacal odor, a styptic, metallic taste and alkaline reaction, soluble in water. Dose, gr. ⅙–j.

Cupri Arsenis, Arsenite of Copper, See *ante*, page 117.

Physiological Action.

The salts of Copper are gastro-intestinal irritants, producing a metalli taste, nausea with greenish vomited matter, purging of blood and mucus constricted fauces, depressed heart-action, hurried respiration and fever Or, as with Arsenic, gastro-enteritis may not occur, but instead profoun nervous symptoms, as headache, defective coördination, coma and convulsions. The symptoms of chronic poisoning are bronchial irritatio and catarrh, gastro-intestinal catarrh, colic with diarrhœa [Lead produce colic with constipation], dysentery, nausea, emaciation, anæmia, salivation, and a green line (sulphide) along the margin of the gums in thos who do not clean their teeth. The nervous symptoms above mentione are also usually well marked. The liver becomes atrophied from irritation of its connective tissue and fatty degeneration of the hepatic cells The lungs are congested, even pneumonic consolidation may be set up the metal seeming to have a selective affinity for the parenchyma of thes organs. These effects are often produced by the inhalation of cuprous fumes, and by eating acid fruits cooked in a copper vessel.

SULPHATE OF COPPER is a simple, irritant emetic, producing prompt and continued vomiting with but little nausea or depression. In small doses it is a nerve-tonic and astringent to the gastro-intestinal tract. Externally applied in solution it is a useful stimulant and astringent to diseased mucous surfaces, and is mildly caustic if used in substance. The ACETATE is possessed of the same general action as above described. Its local action is stimulant and escharotic. The impure acetate (verdigris) is a violent irritant poison. AMMONIATED COPPER has no special action other than above noted.

Antagonists and Antidotes.

Ferro-cyanide of Potassium is the antidote to Copper salts, but albumen or magnesia may be used. Any chemical antidote should be followed by prompt evacuation of the stomach, then Opium and demulcents for gastro-enteritis, and Potassium Iodide even to saturation of the system. Alkalies and their carbonates, lime water, iodides, mineral salts except the sulphates, are all incompatible.

THERAPEUTICS.

The Sulphate is a prompt and efficient emetic, and is so used in croup and narcotic poisoning. In phosphorus poisoning it forms a comparatively insoluble phosphide of copper besides producing emesis. Fifteen or twenty grains may be dissolved in ℥iv of water, and a teaspoonful or more, according to age, given every ten minutes until vomiting is produced. In acute diarrhœa and chronic dysentery it is the best metallic astringent in doses of gr. $\frac{1}{16}$ to $\frac{1}{12}$ with Opium, and in gastro-intestinal catarrh it is equally efficient. Locally, it is used with benefit in throat affections, gonorrhœa, granular lids and corneal ulcers, indolent granulations and chronic inflammations of mucous membranes. In most of these affections weak solutions (gr. ⅛ to ¼ to the ℥) are best, but in granular conjunctivitis the smooth crystal may be rubbed quickly over the surface once daily.

In various nervous diseases, as epilepsy, chorea, hysteria, etc., the salts of copper are sometimes beneficial, the Ammoniated Copper being considered the most efficient preparation in these cases. In Germany a tincture of the Acetate was official and has been used successfully in the treatment of pneumonia. Ammoniated Copper has lately been highly recommended for facial neuralgia, but requires pushing to the production of some physiological action.

Ointments or lotions of the Acetate are useful applications in eczema, herpes, tinea sycosis, mentagra and herpes circinatus.

Villate's Solution has been successfully used as a local injection for the cure of caries. It is composed of Sulphate of Copper, Sulphate of Zinc of each 15 parts, Liquor Plumbi Subacetatis 30, Vinegar 200. The solution is thoroughly injected into the sinuses leading to the carious bone.

CURARE, Woorara (Unofficial),—is a vegetable extract obtaine from various members of the Strychnos family and from *Paulinia curar* and other plants. It is used in S. America as an arrow-poison unde various names, as *Caroval, Vao,* etc. Its active principle is the crystallizable alkaloid *Curarine,* which contains no oxygen.

The dose of Curare is gr. $\frac{1}{20}$–$\frac{1}{6}$ hypodermically,—of Curarine, gr. $\frac{1}{200}$–$\frac{1}{100}$ hypodermically, or gr. $\frac{1}{100}$–$\frac{1}{40}$ by the stomach, but as the samples vary greatly in activity they should first be tried on some inferior animal before being administered to man.

PHYSIOLOGICAL ACTION.

Curare is a paralyzer of the voluntary muscles, affecting them through the end-organs of the motor nerves. It does not at first act upon the brain or spinal cord, but if life be prolonged by artificial respiration the cord, sensory nerves and even the muscular tissue all become affected. The heart, at first quickened, becomes depressed, and the blood-pressure is lowered, the eyelids droop, the eye-balls protrude, vision is disordered, intestinal peristalsis and sensibility to stimuli are greatly increased, and an artificial glycosuria (curare-diabetes) is set up. The limbs are paralyzed first, death occurring by paralysis of respiration. The absorption of the drug by the stomach is very slow, as its active principle passes with difficulty through animal membranes, and its elimination, which takes place by the kidneys, being more rapid and complete than that of any other agent, no marked effect may be produced when administered internally. When hypodermically injected its action is very prompt. The urine of a curarized animal will poison another, and that of the second will paralyze a third.

As compared with other motor depressants Curarine and Coniïne paralyze the end-organs of the motor nerves, Gelsemine and Methyl-coniïne paralyze the motor centres.

Antagonists and Incompatibles.

Strychnine, though from a member of the same family, is antagonistic as to the action on the heart and respiration. So also is *Atropine.* Artificial respiration is the most efficient antagonist, maintaining life until elimination occurs. Evacuation of the bladder repeatedly is important to prevent reabsorption. The caustic alkalies destroy Curarine as they do all other alkaloids.

THERAPEUTICS.

Curare is chiefly used for experimental purposes on the lower animals. It has an historical interest from its having been the means by which Bernard demonstrated the existence of muscular contractility as an essential endowment of that tissue. It has been used with some success in spasmodic nervous affections, particularly in tetanus, both idiopathic and traumatic, in hydrophobia, chorea and epilepsy. It does not promise well as a therapeutic agent, but two undoubted cases of hydrophobia are reported by high authority as cured by this drug.

CYDONIUM, Quince Seed,—is the seed of *Cydonia vulgaris*, a tree of the nat. ord. Rosaceæ, native in Crete and Austria, and cultivated elsewhere. The seeds are about ¼ inch long, triangularly compressed, covered with a whitish epithelium, and in water they swell up forming a mucilaginous mass. The mucilage is the only constituent of importance and is contained in the epithelial cells. It has been named *Cydonin*, and considered to be a compound of gum and cellulose.

Preparation.

Mucilago Cydonii,—prepared by macerating 2 parts of Cydonium in 100 of Distilled Water. Dose, indefinite.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Cydonium is of value for its mucilage, which is used as a bland, demulcent application in conjunctivitis, abrasions of the skin, fissures of the mucous membranes, and as a vehicle for injections in gonorrhœa. Internally it may be used as a soothing remedy for the throat, stomach or intestines. The preparation known as *Bandoline*, used as a hair-dressing, is identical with the mucilage of Cydonium.

CYPRIPEDIUM, Ladies' Slipper,—is the rhizome and rootlets of *Cypripedium pubescens*, and of *C. parviflorum*, the Moccasin-plant, or American Valerian (nat. ord. Orchidaceæ). Is dark or orange-brown in color, of strong, heavy odor, and bitter pungent taste. It contains a volatile oil, a volatile acid, resins and tannin.

Preparations.

Extractum Cypripedii Fluidum,—Dose, ♏x–xxx.
Cypripedin (Unofficial),—is an impure alcoholic extract. Dose, gr. ss–iij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Cypripedium is antispasmodic, tonic, stimulant and diaphoretic, possessing the same general properties as Valerian, whence one of its common names.

It is a popular remedy in some parts of the U. S. for nervous hyperæsthesia unaccompanied by organic lesion, especially morbid sensibility of the eye. It is reported to have even cured epilepsy, and to be highly useful in neuralgia, hysteria, nervous headache and insomnia.

DAMIANA (Unofficial),—the leaves of *Turnera aphrodisiaca*, a plant of the nat. ord. Turneraceæ, growing in Mexico and Lower California. Several varieties of so-called Damiana are in the market, but the true leaf is of a light-green color, small, lanceolate, and dentate along the margin. It contains a volatile oil and a resin. Dose, ℥j daily.

Preparations.

Extractum Damianæ (Unofficial),—Dose, gr. ij–x.
Extractum Damianæ Fluidum (Unofficial),—Dose, ♏x–ʒj.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Damiana is said to be a powerful aphrodisiac in cases of sexual atony, but the published reports of its use since its introduction vary greatly as to its efficacy. It is probably a stimulant diuretic, a bitter tonic, and a purgative in sufficient doses.

Besides its use as an aphrodisiac Damiana has been administered with benefit in some forms of cerebral exhaustion and general atony of the nervous system, also in sick headaches and in some few cases of paralysis. It forms the chief stock in trade of the numerous charlatans who fill the daily papers with advertisements of "manhood-restorers."

DATURA TATULA (Unofficial),—is an indigenous plant of the nat. ord. Solanaceæ, resembling Stramonium very closely, with which it generally agrees in its physiological action and therapeutics. It is distinguished by its purple stem, purple flowers and anthers, and the darker green of its leaves. It probably contains the alkaloid *Daturine* (see STRAMONIUM),—and has been smoked in asthma, in a few cases giving continued relief when Stramonium had failed to render any service.

DIGITALIS, Fox-glove,—Digitalis consists of the leaves, collected from plants of the second year's growth, of *Digitalis purpurea*, the Purple Foxglove, a plant of the nat. ord. Scrophulariaceæ, which grows wild in Europe, and is cultivated in this country, often in private gardens for its beautiful spike of purple flowers, and largely by the Shakers for the drug market.

The British Phar. directs that the official drug shall consist of "the dried leaf, collected from the *wild*, indigenous plant, when about two-thirds of the flowers are expanded." Much of the leaf found in our shops is of very poor quality, a large proportion being inert; but whether this is due to our Phar. not restricting the official drug to the wild plant, or to careless treatment in gathering and drying, is not definitely known. When, however, the leaves are imperfectly dried, a process of decomposition sets in, which destroys the active principles, and may produce new and poisonous ones. A similar decomposition is said to occur whenever the tincture of Digitalis is mixed with watery or syrupy solutions. Certain it is, at any rate, that Digitalis is one of the most unreliable drugs, in respect of the physiological activity of any particular sample or preparation. The seeds are known to contain the active principle in much greater proportion than the leaves, but they are never used.

The active principle of Digitalis has been designated by the term *Digitalin*, (Digitalinum), under which name a substance was official in the U. S. and Br. Phar. and a process was given therein for its extraction, until their last revision, when it was struck from both lists. It was an amorphous product, of complex composition, and did not represent Digitalis.

In 1871 Nativelle received the Orfila prize from the French Academy for the discovery of a crystalline principle in Digitalis, which he named *Digitaline*. This was supposed to be the active principle of the plant, until Roucher, (1872) and Schmiedeberg, (1875) found it to be a complex body, consisting of a mixture of Digitoxin and Digitalin. Schmiedeberg's latest analysis is now accepted as the most accurate determination yet obtained of this vexed question. He enumerates five principles at least as contained in Digitalis, viz.:—(1) *Digitalin*, amorphous, insoluble in water, but readily soluble in alcohol; the active ingredient of Homolle's French Digitaline and the Digitalin of the U. S. and Br. Pharmacopœias;—(2), *Digitoxin*, insoluble in water and sparingly soluble in alcohol; the most active of all, and the principal constituent of Nativelle's prize Digitaline;—(3) *Digitaleīn*, soluble in both water and alcohol;—(4) *Digitonin*, readily soluble in water, sparingly so in alcohol;—active, but acts like *Saponin*, forming a solution which froths easily and antagonizes the other three;—(5) *Digitin*, which seems to be entirely inert. The first three are cardiac poisons, the fourth antagonizes them; and all five are non-nitrogenous, and except Digitoxin, are glucosides.

Preparations.

These vary greatly in results, by reason of the different solubilities and actions of the active principles.

Digitalis, Folia Digitalis, Digitalis Leaves. Dose, gr. ss–iij.

Abstractum Digitalis, Abstract of Digitalis. Dose, gr. ¼–ij.

Extractum Digitalis, Extract of Digitalis,—Al. 2, Aq. 1. Dose, gr. ⅙–½.

Extr. Digitalis Fluidum, Fl. Ext. of Digitalis,—Al. 3, Aq. 1. Dose, ♏j–iij.

Tinctura Digitalis, Tincture of Digitalis,—15 per cent. Dose, ♏v–ʒj.

Infusum Digitalis, Infusion of Digitalis,—1½ per cent. Dose, ℥ss–j. Is flavored with Cinnamon, and has 7½ per cent. of Alcohol.

Digitalinum, Digitalin,—the complex product of the process in the U. S. and Br. Phar., but no longer official. Dose, gr. $\frac{1}{60}$–$\frac{1}{30}$.

Note on the Preparations.—Of the above, the *Tincture* and *Fluid Extract*, being alcoholic preparations, contain a large proportion of Digitalin and Digitaleīn, with a small proportion of Digitonin; the Digitoxin going to the bottom as an insoluble precipitate. The *Infusion* contains a larger proportion of Digitonin than of the others, some Digitaleīn, and little or no Digitoxin or Digitalin. It is the best for diuretic action, the Tincture for acting upon the heart; but to obtain the action of the plant itself, the powdered leaves must be used in pill or capsule.

PHYSIOLOGICAL ACTION.

Digitalis is a cardiac tonic and a vascular stimulant, an excito-motor, also emetic, diuretic, hemostatic, anaphrodisiac, and paralyzant. In overdoses it irritates the mucous membranes, causing sneezing, severe gastric disturbances, nausea, vomiting, colic and purging, the discharges being of a grass-green color. It lowers temperature, probably by lessening the blood-supply to the tissues, produces headache, irregularity of the heart's action, vertigo and an appearance of vibratory fringes of color around objects.

The Heart is slowed by Digitalis, but its force is at the same time increased. The drug stimulates the cardiac motor ganglia, the inhibitory apparatus, and the vaso-motor centres, contracting the arterioles; and thereby greatly raising the arterial tension. Full doses continued exhaust the irritability of the motor ganglia and paralyze the cardiac muscle itself. The recumbent posture must be maintained when Digitalis is given for its full cardiac effects. Its general effect on stripèd muscular tissue is to lessen the contractile power, causing great weakness and languor. Under it, the excretion of urea is at first increased, but soon decidedly diminished. It lessens the sexual appetite and impairs the venereal function.

The *Diuretic Action* of Digitalis is due to its peculiar influence upon the general and renal circulation, it increasing the force of the ventricular contractions, while at the same time one of its constituents, ***Digitalin***, contracts the blood vessels of the body, and two others, ***Digitoxin*** and ***Digitaleïn***, dilate the renal arteries. The effect of this combined action is to greatly raise the arterial tension and the blood-pressure in the glomeruli, their efferent vessels being contracted;—while the rapidity of the renal circulation is increased and its volume augmented by the greater force of the heart-beat and the dilatation of the afferent vessels. No other drug known has this double power, and therefore, so far as vascular action is concerned, Digitalis is the ideal diuretic. Still, while its power to produce diuresis in cardiac disease is unquestioned, most observers deny that it has any such power in health.

Lethal Doses lessen the reflexes by stimulation of Setschenow's centre, and paralyze the muscles and the peripheral nerves, motor and sensory. Respiration, at first slowed, becomes rapid and feeble; cyanosis, coma and convulsions follow, and death by sudden paralysis of the heart, which is arrested in systole.

Compared with Aconite, both it and Digitalis slow the heart, but otherwise their actions are antagonistic. Aconite relaxes inhibition and depresses the cardiac motor ganglia,—Digitalis increases inhibition and stimulates the motor apparatus. Both drugs finally paralyze the cardiac ganglia, Aconite by direct depression, Digitalis by over-stimulation. Both depress the cardiac muscle. Under Aconite the heart is arrested in diastole, under Digitalis in systole. The arterial tension is lowered by Aconite, raised by Digitalis. Aconite acts quickly, Digitalis very slowly, —a fact which makes the latter drug of little value in poisoning by the former.

During the use of this drug for any length of time the motor apparatus of the heart is so nearly paralyzed by overstimulation that on suddenly assuming the erect position the cardiac energy may fail, more especially if the doses used are administered too closely together to admit of the elimination of one before the ingestion of the next. This is the explanation of the so-called cumulative action of Digitalis, which is not now recognized in the sense in which the term was formerly applied.

Antidotes, Antagonists and Incompatibles.

Tannic Acid is the chemical antidote, but as the tannate is not inert the stomach should be evacuated. *Aconite* is the best antagonist to the effects of large doses, *Opium* to those of its long-continued use. *Saponin* and *Senegin* are considered to be its most complete physiological antagonists. Incompatibles are Cinchona, Sulphate of Iron, Tincture of the Chloride of Iron, and Acetate of Lead, also syrupy and watery solutions which may decompose the active principles of the plant.

THERAPEUTICS.

The chief use of Digitalis in disease is based on its property as a heart tonic. Its great sphere is in mitral disease, when the heart is rapid and feeble, it moderating pulmonary hyperæmia and engorgement by giving the auricle time to empty itself through the obstructed orifice. In aortic disease it gives relief when the compensatory hypertrophy has not set in, otherwise it is contraindicated. It is particularly useful in dilatation of the right side of the heart with incompetence of the tricuspid. The rational symptoms which indicate its use are—rapid and feeble cardiac action, low arterial tension, cough, dyspnœa, pulsating jugulars, a dusky face, scanty and high-colored urine and general dropsy. In the irritable heart of soldiers Digitalis is frequently curative, and palpitation, cardiac failure, and venous engorgement are well treated by it. It should not be used in simple hypertrophy when compensatory, aortic stenosis with compensatory hypertrophy, pericarditis or fatty heart, except temporarily for some special indication. It is a useful remedy in dropsy, both cardiac and renal, in the first stage of pneumonia and other inflammations, in the early stage of scarlet fever and when the kidneys strike work in that disease, in exophthalmic goitre, congestive headaches, and hemicrania, in mania, delirium tremens and other congestive conditions of the brain. As a hemostatic it may be used in hemorrhage from a large surface, in the hemorrhagic diathesis, hemoptysis, and menorrhagia. As an antipyretic it has been much used in fevers, but a reaction is setting in against this employment of so powerful a heart-depressant. In rheumatic fever it lowers the temperature, shortens the duration of the disease, and is particularly indicated for any cardiac complications. In spermatorrhœa of the plethoric it may be well combined with Potassium Bromide, and when this affection is complicated with an atonic condition, shown by feeble erections, frequent emissions and cold feet and hands, it is a serviceable anaphrodisiac. Finally, Digitalis is said by high authority to be particularly adapted to blondes and persons of sanguine and indolent temperament.

DIOSCOREA, Wild Yam, Colic-root (Unofficial),—is the rhizome of *Dioscorea villosa*, a creeping plant of the nat. ord. Dioscoraceæ, indigenous to the eastern U. S. It contains an acrid Resin, and is reported to be expectorant and diaphoretic in action, as well as stimulating to the intestinal canal, and in large doses to cause general neuralgic pains with erotic excitement. It is used with great success in bilious colic; and in the cramps of cholera morbus, spasmodic hiccough, dysmenorrhœa and nocturnal emissions of sthenic type it is said to be very efficient. A powdered extract named *Dioscorein* is on the market, of which the dose is gr. j-iv. A fluid extract made according to the pharmacopœial rule may be administered in doses of ♏xv-xxx.

DITA BARK (Unofficial),—is the bark of *Alstonia scholaris*, a t of the nat. ord. Apocynaceæ, growing in the Philippine Islands. It c tains two active alkaloids, *Ditaine* and *Ditamine*, the former of wh has an action identical with that of Curare. The bark is considered to and antiperiodic, and is used in the East as a remedy for intermitte It may be given in doses of ʒj–iv, in powder or as fluid extract.

DROSERA, Sundew (Unofficial).—A fluid extract of *Dros rotundifolia*, the round-leaved Sundew, is said to have been successfu used in phthisis pulmonalis. It is certainly a most useful agent in who ing-cough and other spasmodic coughs. The expressed juice has b applied to warts and corns, for the purpose of curing them. Dose of fluid extract, ♏v–xx.

DUBOISIA (Unofficial),—is the leaf of *Duboisia myoporoides*, Australian tree of the order Solanaceæ. It contains a poisonous alkalo *Duboisine*, which is believed to be identical with Hyoscyamine, a strongly resembles Atropine.

Preparations.

Extractum Duboisiæ (Unofficial),—Dose gr. $\frac{1}{8}$–$\frac{1}{4}$.
Tinctura Duboisiæ (Unofficial),—Dose, ♏v–xx.
Duboisinæ Sulphas (Langenberg's), Unofficial,—Dose, gr. $\frac{1}{100}$–$\frac{1}{60}$.

PHYSIOLOGICAL ACTION.

The actions of Duboisia are in all respects similar to those of its c gener, Belladonna, except that Duboisine is more soluble in water t Atropine, is less irritating to mucous membranes, and more prompt mydriatic action, but its effects are of shorter duration. It is also less a cerebral excitant and more of a calmative and hypnotic. On man action is said by some authorities to be more powerful than that of At pine, but less powerful on frogs.

Antagonists and Incompatibles.

These are the same as for Belladonna, for which see *ante*, p. 127.

THERAPEUTICS.

Duboisine has not been much used except by ophthalmologists w employ it as a mild mydriatic. Its advantages over Atropine in oc therapeutics are its more rapid action in paralyzing accommodation effecting mydriasis, the shorter duration of its effects and its slight irr tion of the conjunctiva. It has been well employed in puerperal ma and may be used in place of Atropine in many conditions, especially night-sweats of phthisis, respiratory neuroses and cardiac failure. It is efficient antagonist to Morphine.

DULCAMARA, Bittersweet,—the young branches of *Solanum Dulcamara*, or Woody Night-shade, a shrub of the nat. ord. Solanaceæ, growing in Europe and N. America. Occurs in short sections ¼ inch thick, covered with a pale green bark, of slight odor, and taste at first bitter, afterwards sweet. It contains the glucoside *Dulcamarin*, a peculiar principle named *Picroglycion*, and the alkaloid *Solanine*, which exists in the stems of other species of Solanum, viz.—*S. tuberosum* (potato), *S. Lycopersicum* (tomato), and *S. nigrum* (black nightshade). Solanine is of bitter taste, alkaline reaction, crystalline in minute prisms, soluble in 125 of boiling alcohol but very insoluble in water. It is a narcotic poison, but exists in very small quantity in the plant.

Preparations.

Extractum Dulcamaræ Fluidum,—Dose, ʒj.

Decoctum Dulcamaræ (Unofficial),—may be made of the official 10 per cent. strength and given in doses of ℥j–ij.

PHYSIOLOGICAL ACTION.

Dulcamara is but imperfectly understood. In overdoses it has produced nausea and vomiting, vertigo, convulsive muscular movements, pruritus and erythematous eruptions on the skin, languid circulation with a dusky color of the face and hands. In children who have eaten the berries there have been observed signs of severe enteralgia, abdominal tenderness, nausea, thirst, heat in the throat and chest, great prostration, rapid pulse, quick and painful respiration. In very large doses it is a narcotic poison, causing paralysis by depression of the central nervous system, with lowered activity of the heart and respiration. It is believed by some authorities to be anaphrodisiac, diaphoretic and diuretic.

THERAPEUTICS.

Dulcamara was formerly used in a variety of affections, as herpetic diseases, chronic rheumatism, gout, jaundice, etc. It is now chiefly employed in obstinate scaly skin diseases, as psoriasis and pityriasis, in which it is unquestionably serviceable. It is also serviceable in the diarrhœa of children when produced by exposure to cold and damp, in mania with strong venereal propensities, chronic bronchitis and whooping-cough. As a diaphoretic it has been used with benefit in rheumatic and venereal disorders, and is often beneficial in nasal, pulmonary and vesical catarrhs. It is said to be particularly useful in affections of a rheumatic or catarrhal nature when caused by exposure to damp weather.

ELATERINUM, Elaterin, $C_{20}H_{28}O_5$,—is a neutral principle extracted from *Elaterium*, a substance deposited by the juice of the fruit of *Ecballium Elaterium*, or Squirting Cucumber, a cultivated European plant of the nat. ord. Cucurbitaceæ. Elaterium is no longer official b reason of its variable quality. Elaterin occurs in small, colorless scal or prisms, of bitter taste and neutral reaction, insoluble in water, solub in 125 of alcohol and in solutions of the alkalies. Dose, gr. $\frac{1}{20}$–$\frac{1}{12}$.

Preparation.

Trituratio Elaterini,—Elaterin 10, Sugar of Milk 90 parts, thoroughly mixed by trituration. Dose, gr. ss–j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Elaterin is the most powerful of the hydragogue cathartics, causing profuse, watery stools, and when given in large doses great prostration and gastro-intestinal irritation, nausea and vomiting. On the lower animals it does not produce purgation, but profoundly impresses the nervous system, causing irregular breathing, convulsions and death.

Its chief use is to produce free watery discharges in ascites, anasarca, uræmia and cerebral disorders, but while the most efficient agent we possess for this purpose it must be used with great caution in the aged and feeble, as it is very depressant.

ERGOTA, Ergot, Ergot of Rye,—is the sclerotium (compact mycelium or spawn, intermediate fibrous stage) of *Claviceps purpurea* (nat. ord. Fungi), growing within the flower and replacing the grain of *Secale cereale*, Rye (nat. ord. Graminaceæ). It occurs in fusiform, curved, grain-like bodies, about an inch long, three-furrowed, obtuse at the ends, of purplish-black color, peculiar and heavy odor, and oily, disagreeable taste. It should be preserved in a dry place, and should not be kept longer than a year. Dose, gr. x–ʒj.

COMPOSITION OF ERGOT.

The composition of Ergot and the nomenclature of its supposed constituents is a subject upon which there exists a great diversity of opinion, and about which there is nothing settled. The following synopsis gives the views of the different persons who have examined into the matter.

WENZELL (1864) named two alkaloids, *Ecboline* and *Ergotine*, which he claimed to b the active principles, and to be combined with *Ergotic Acid*, a volatile body yielding crystallizable salts. He also claimed the presence of Trimethylamine as a Phosphate.

TANRET (1877) isolated a crystallized alkaloid, which he named *Ergotinine*, $C_{35}H_{40}N_4O_6$ (dose, gr. $\frac{1}{60}$–$\frac{1}{10}$), also a volatile camphoraceous substance.

DRAGENDORFF and his pupils (1875–1879) stated the active principles to be two i number, *Sclerotinic Acid*, a very powerful body, yellow-brown, amorphous, tasteless and well adapted for hypodermic use in doses of gr. $\frac{1}{20}$–$\frac{1}{10}$, and *Scleromucin*, a colloid substance, also quite active. Besides these they held that Ergot contained various coloring matters (Sclererythrin, Scleroxanthin, etc.), also a non-drying Oil, a peculiar suga (Mykose), a number of alkaloids (Trimethylamine, etc.), and other principles, all inert.

KOBERT (1885) announces that Ergot contains three active principles, viz., *Ergotini Acid*, the chief constituent of Sclerotinic Acid, having no ecbolic action, but affecting th nervous system, the heart and the respiration;—*Sphacelinic Acid*, which is non-nitrogenous and soluble in alcohol, stimulates the vaso-motor centre and is the active agent in producing gangrenous ergotism;—*Cornutine*, an alkaloid, produces convulsions and peristaltic contractions of the uterus, and is the active agent in causing convulsive ergotism.

Tanret's Ergotinine has been proven to have no action on the uterus. The Ergotin of Bonjean, Wiggers and Tanret is not a fixed compound, but a mixture. The Ecboline of Wiggers is also a mixture. Sclerotinic Acid is said by many authorities to act on the uterus, but this is positively denied by many others. It is probably a very uncertain preparation. For the Ergotin of commerce see below.

Preparations.

Extractum Ergotæ Fluidum,—prepared with diluted Hydrochloric Acid, Alcohol and Water. Dose, ʒss–ij.

Extractum Ergotæ, Extract of Ergot, commonly called *Ergotin*,—is prepared by evaporating 5 parts of the fluid extract at a temperature not above 122° F. until reduced to 1 part. Dose, gr. ij–xx.

Vinum Ergotæ,—strength 15 per cent. Dose, ʒj–℥j. Is made by an improved method and is more reliable than that formerly official.

Ergotin (Unofficial),—is the name of several watery extracts found on the market, and varying much in action both from each other and from the parent drug. That made by Squibb is about the same strength as the official extract, and represents the general powers of Ergot. It may be used hypodermically in doses of gr. ¼–gr. v. The Ergotin of Bonjean is also an aqueous extract, but is very variable in quality and frequently inert. Wiggers' Ergotin is insoluble in the ordinary menstrua, and inert on the vascular apparatus, but causes colic and gastro-enteritis.

PHYSIOLOGICAL ACTION.

ERGOT is an excito-motor and a hemostatic, chiefly affecting the spinal cord, circulation, respiration, intestinal and uterine muscular fibres. Its principal actions are the production of an artificial anæmia, and tetanic contraction of unstriped muscular fibre. Its phenomena are divided into two sets, named respectively *Acute* and *Chronic Ergotism*, according as the drug is administered in large doses, or in small quantity for a considerable length of time.

ACUTE ERGOTISM. In large doses Ergot acts as a gastro-intestinal irritant, causing nausea and vomiting, gastralgia, colic, thirst, difficult micturition and purging. It slows the heart, raises the arterial tension greatly, dilates the pupils and produces pallor, vertigo and frontal headache. Its action on the circulation is due to its inducing arterial anæmia, but whether this is done by contraction of the arterioles through direct action on their muscular fibres or by central stimulation of the vaso-motor system, or by producing active venous dilatation, thus draining the arterial system, is a much disputed question. It certainly stimulates the contraction of unstriped muscular fibre, especially affecting the sphincters and the uterus, causing continuous labor pains and tonic contraction of the sphincter vesicæ, making micturition difficult if not impossible. It also produces cerebral and spinal anæmia, coldness of the surface, tetanic spasms and violent convulsions, but very large doses (several ounces) are necessary to such results. As much as ℥ iij of the fluid extract has been given daily for a week or more, without producing any marked effect.

Chronic Ergotism occurs in two forms, (1) the *Convulsive*, (2) the *Gangrenous*,—either usually excluding the other. The convulsions are tetanoid spasms of the flexor muscles, the uterus, the intestinal fibres, and the muscles of respiration, ending in coma and death by asphyxia. The gangrenous form begins with coldness and numbness of the limbs, formication of the skin all over the body, loss of sensibility and abolishment of the special senses, bullæ of blood and ichor, followed by dry or moist gangrene of the lower extremities, buttocks and other parts, epileptiform convulsions, coma and death. Autopsies show changes in the posterior columns of the cord, resulting probably from the spinal anæmia.

Experiments with the various derivatives of Ergot show that no one of its constituents represents the power of the drug itself. Those which come nearest to it in action are the Ergotinine of Tanret and Sclerotinic Acid.

Antagonists and Incompatibles.

Amyl Nitrite, Aconite, Veratrum Viride, Tobacco and Lobelia antagonize its action on the circulation. Caustic alkalies and metallic salts are chemically incompatible.

Therapeutics.

Ergot has a wide field of application. Its most familiar use is to promote uterine contraction in labor, but as the contractions produced by it are continuous instead of the natural intermittent ones, it is highly dangerous when there is any obstacle in front of the child, the probable results being rupture of the uterus, paralysis of the fœtal heart, and severe laceration of the perineum. At the end of the second stage of labor is the best time for its employment, to promote firm uterine contraction, thereby guarding against post-partum hemorrhage, as well as to aid in the expulsion of the placenta. In many uterine affections, as chronic metritis, subinvolution, congestive dysmenorrhœa, menorrhagia, fibroids and polypi, it is well employed, producing firm contraction of the womb and promoting absorption of inflammatory products. It is extremely useful in amenorrhœa due to plethora, and in the atonic form of spermatorrhœa. In conjunctivitis, gonorrhœa, and inflammations of mucous membranes generally, it is of striking benefit, if used both locally and internally. It is also an excellent remedy in acute and chronic dysentery, chronic diarrhœa, atonic hemorrhages of arterial type, mania due to cerebral hyperæmia, headache and migraine of congestive form, myelitis, spinal congestion, cerebro-spinal meningitis, splenic enlargement, lax sphincters of rectum and bladder, and in incontinence of urine from paralysis of the sphincter vesicæ. Hemorrhoids are well treated by its local application, but here it should not be used internally as it promotes venous congestion.

In aneurism it aids coagulation by slowing the blood-current, and in cardiac hypertrophy without valvular lesion it acts well by slowing the heart. In diabetes insipidus full doses of Ergot are often curative, and it has been used with benefit in diabetes mellitus.

Hypodermically, the aqueous extract dissolved in water and free from alcohol or any other irritating substance, is in many cases much more prompt in action than when given per orem, especially if injected near to the seat of the affection. This is particularly true in post-partum and other hemorrhages, prolapse of the rectum, chronic metritis and subinvolution of the womb, uterine fibroids, varicocele and varicose veins. When so administered it will frequently so contract the sphincter of the bladder as to produce retention of urine, and require the use of the catheter.

ERIGERON, Fleabane (Unofficial),—is the flowering plant *Erigeron canadense*, a weed of the nat. ord. Compositæ, growing in N. America. It contains a Volatile Oil, which is official, also tannic acid and a bitter extractive.

Preparation.

Oleum Erigerontis, Oil of Fleabane,—a pale yellow liquid, of sp. gr. about 0,850, becoming darker by age and exposure to air, of peculiar and persistent odor, pungent taste and neutral reaction, readily soluble in alcohol. Dose, ♏x–ʒss.

Physiological Action and Therapeutics.

Oil of Erigeron has the same action as Oil of Turpentine but is less irritant and less efficient. It has considerable reputation as a hemostatic, especially in menorrhagia and intestinal hemorrhage of passive form, as in typhoid fever. It is also used with benefit in diarrhœa and dysentery, and in hemoptysis without fever or other evidence of irritation it is a very valuable remedy.

ERIODYCTION, Yerba Santa (Unofficial),—the leaves of *Eriodyction glutinosum*, a Californian shrub of the nat. ord. Hydrophyllaceæ. They are from 2 to 4 inches long, shining-green as if varnished on the upper surface, white and hairy beneath, of fragrant odor, aromatic taste, and contain an acrid Resin and an aromatic Volatile Oil.

Preparations.

Extractum Eriodyctii Fluidum (Unofficial),—Dose, ♏xv–ʒj.
Extractum Eriodyctii (Unofficial),—Dose, gr. ij–x.

Physiological Action and Therapeutics.

Eriodyction is expectorant, and covers the taste of Quinine in a remarkable manner. It is used with fair success in bronchial and laryngeal affections, and asthma. Combined in syrup with Grindelia it is very efficient for coughs.

ERYTHROXYLON, Coca, Cuca,—the leaves of *Erythroxylon Coca*, a small shrub of the nat. ord. Erythroxylaceæ, indigenous to the mountains of Peru and Bolivia, and extensively cultivated in those and other S. American states. It has numerous purplish-brown branches; small, yellowish, 5-petalous flowers, and a scarlet-red, oblong fruit, containing a single seed. The leaf resembles a large tea-leaf, being 2 to 3 inches long, oval-shaped, obtuse at the apex, reticulate on both sides, with a prominent midrib, on either side of which is seen a curved line on the leaf from base to apex; odor tea-like, taste slightly bitter and aromatic. It contains a crystalline alkaloid *Cocaine*, $C_{17}H_{21}NO_4$, which when heated with HCl is split up into Benzoic Acid, Methylic Alcohol and another alkaloid *Ecgonine*. Other constituents are a volatile, liquid alkaloid of herring-brine odor, alkaline reaction and burning taste, named *Hygrine*, an aromatic Oil, and Coca-tannic Acid. Coca should not be confounded with Cocoa, the seed of the chocolate-tree, *Theobroma Cacao*. Dose of the leaves, ʒj–iv.

Preparations.

Extractum Erythroxyli Fluidum,—Dose, ʒss–ij. Leaves of good quality are so difficult to be obtained that Dr. Squibb, the well-known pharmaceutist, recently omitted the fluid extract from his trade-list, with the explanation that "it is impossible to get Coca of proper quality for medical use."

Cocaina, Cocaine, $C_{17}H_{21}NO_4$ (Unofficial),—crystalline, colorless and of bitter taste, very soluble in ether, almost insoluble in water or alcohol, and of decided basic properties, combining with acids to form salts. It exists in the leaves in very small quantity, viz.—from 0.02 to 0.04 per cent. Dose, gr. $\frac{1}{8}$–ij.

Cocainæ Hydrochloras, Hydrochlorate of Cocaine, $C_{17}H_{21}NO_4Cl$ (Unofficial),—more properly Chloride of Cocaine,—is used in aqueous solutions of 2 to 5 per cent. as a local anæsthetic to mucous surfaces or by subcutaneous injection. Dose, internally, gr. $\frac{1}{8}$–ij.

Cocainæ Oleas, Oleate of Cocaine (Unofficial),—a 10 per cent. solution of the alkaloid in Oleic Acid, for external use.

Wines, Lozenges, Elixirs, Glyceroles, Pastes, etc., of Coca are being manufactured and marketed in great variety. The Citrate and Salicylate of Cocaine are recent products of the laboratory and may be obtained in the shops.

PHYSIOLOGICAL ACTION.

COCA is an aromatic bitter tonic, a diuretic and a cerebral and nervous stimulant, though locally used one of the most efficient nerve sedatives. Small doses improve digestion, stimulate respiration, increase the heart's action after a brief depression, raise the arterial tension, and increase the excitability of the sensory nerves. It stimulates the brain by increasing its blood-supply, producing wakefulness, a sense of well-being, and a marked diminution of the senses of fatigue, hunger and thirst. Under its daily use a considerable amount of labor and want of sleep can be borne without suffering. Though diuretic, it lessens the quantity of urea eliminated by checking the processes of waste. Very large doses produce impaired coördination, hallucinations and delirium.

COCAINE acts upon the lower animals similarly to Caffeine. It tetanizes frogs, and in large doses paralyzes their sensory nerves and the posterior columns of the spinal cord. It kills rabbits and dogs by paralysis of the respiratory centre. In proper doses it raises arterial tension by stimulating the vaso-motor centres and the cardiac motor system.

On man, in small doses Cocaine is a cerebral, cardiac, respiratory and nervous stimulant, and a diuretic. It improves digestion, stimulates respiration, increases the heart's action, raises the arterial tension, and exalts the irritability of the sensory nerves. It stimulates the brain by increasing its blood-supply, producing wakefulness and marked diminution of the senses of fatigue and hunger. Though decidedly diuretic, it lessens the quantity of urea, by checking the processes of waste, thus acting as an indirect nutrient, and enabling the body to maintain its energy on a lessened supply of food. It increases the cutaneous circulation, flushing the surface, exciting perspiration, and a sense of heat, and does actually raise the body-temperature. It dilates the pupil, both when locally applied and when taken systemically,—and stimulates intestinal peristalsis as well as the evacuation of the bladder in a few minutes after its ingestion.

An Overdose produces symptoms of cardiac and respiratory embarrassment in a very short time. The pulse, at first quick and forcible, becomes small, rapid and intermitting;—the heart apparently standing still in systole once in every 10 or 12 beats. Respiration is slow and shallow, and a sense of "tightness" about the chest is very marked;—the skin grows cold and clammy, and the subject is seized with a sense of impending dissolution. Death occurs in animals by paralysis of respiration,—but in man there seems to be a tetanoid spasm of the cardiac muscle, which is equally dangerous to life. Other symptoms are impairment of coördination, hallucinations and delirium. *Lethal Doses* paralyze the intra-cardiac motor ganglia, the posterior columns of the cord and the sensory nerves, and the respiratory centre.

As a *Local Anæsthetic* the power of Cocaine is very great over a limited area. Applied to such structures as the Schneiderian membrane, mucous covering of the glans penis; or injected hypodermically in other locations, it blanches the structures and causes a profound but temporary anæsthesia throughout a small space. Applied to the tongue it temporarily destroys both taste and tactile sensibility;—to the ocular conjunctiva, it produces profound anæsthesia of that membrane, together with dilatation of the pupil, partial paralysis of accommodation, enlargement of the palpebral fissure, slight lachrymation, and sometimes temporary ptosis. This profound degree of anæsthesia is thought by some to be caused by its paralyzing the terminal twigs of the sensory nerves,—by others to be due to vaso-motor action rendering the nerves bloodless and therefore unable to transmit sensory impressions. It produces mydriasis by stimulation of the ends of the sympathetic in the iris, and does not affect the third nerve or the sympathetic centre.

In general action, *Cocaine* resembles *Atropine* very closely, especial in its influence upon the pulse and blood-pressure, the respiration, pupil salivary- and sweat-glands and intestinal peristalsis. In its symptom both from large and small doses, it exactly parallels *Sparteine*, anothe cardio-inhibitory depressant.

Antagonists.

Amyl Nitrite combats the earliest symptoms of cardiac depression,—then *Alcohol* an *Opium* as stimulants to the heart, also *Artificial Respiration*. The most direct antag nist is *Chloral*, so also are Chloroform and Ether. *Morphine* is also directly antagonist at almost all points.

The Cocaine-Habit.

COCAINISM, or the Cocaine-habit, is now presenting itself to observation, numero instances of persons addicted to its excessive use being met with. Loss of digestive pow absolute insomnia, enfeeblement of the intellect, great emaciation, ascites, general mara mus, nausea, decay of the teeth, an excessively fetid breath, amblyopia, visual hallucin tions and complete anorexia form a consensus of symptoms which rival the worst effec of the opium habit. Some observers report the most extraordinary mental changes resu ing from Cocainism, and exceeding those produced by any other drug. The most inten selfishness, utter disregard of all social and domestic duties, the most debasing habi complete destruction of all noble qualities, and a general condition of depravity, are so of the results which are being charged to this drug. The habit is acquired, in almost cases, by persons previously addicted to the use of Morphine, who go to Cocaine in t hope of finding help in their struggle against the tyranny of the former drug. In th hope, however, they are always disappointed, especially when the drugs are in their ow hands. The victim soon finds that one of these agents antagonizes the other to a gre extent, while, at the same time, it sets up peculiar troubles of its own: and that there is constant need of more Morphine to counteract the Cocaine-symptoms, and of more Cocai to antagonize the increased amount of Morphine. The result of any such attempt will that one who is only using a moderate daily amount of Morphine, will, if Cocaine added, soon be using a very great amount of Morphine, as well as of Cocaine, and "t last state of that man is worse than the first."

THERAPEUTICS.

COCA-LEAVES are chewed by the Peruvians for the purpose of sustainin them during arduous labors and long journeys, and were so high esteemed as to have been represented on the coat-of-arms of that natio by whom they are used much as we do tea, coffee or tobacco. T example was imitated by Weston the pedestrian, who is said to have be detected chewing the coca-leaf during one of his protracted walk COCAINE is a useful stimulant to the brain and the nervous system many morbid conditions, particularly cerebral and spinal anæmia, neura thenia, melancholia, hysterical and hypochondriacal insanity, and protracted mental depression with suicidal tendency. It may be employ with benefit in wasting diseases to retard waste and to stimulate digestio in convalescence from fevers and other acute maladies, and in migrai and neuralgia due to depression of the nervous system. It is very benefici in some cases of the vomiting of pregnancy, in stomatitis and gastralgi and in functional impotence due to general atony of the system.

A wine of the leaves is thought by singers and speakers to relieve hoars ness, to tense the vocal cords and improve the timbre of the voice. Coc leaves may be smoked in cigars or cigarettes to obtain the exhilarating effects of the drug, and for the relief of asthma, hay-fever and many irritable throat affections. The Oleate of Cocaine is an efficient palliative application to painful hemorrhoids, fissures of the anus, burns, boils, and irritable ulcers; also in pruritus pudendi et ani and skin diseases attended with intolerable itching.

Hydrochlorate of Cocaine has achieved notoriety as a local anæsthetic, and promises to be of the greatest value in many operations on the eye and ear, nasal passages, uterus and urethra. A 2 to 4 per cent. solution is brushed lightly over the mucous surface or injected into the urethral canal, the application being repeated within 5 or 10 minutes if profound local anæsthesia is required. After about fifteen minutes any superficial operation may be performed without giving the slightest pain. Its anæsthetic action is so entirely local and generally free from unpleasant after-effects that it is considered the most efficient and desirable agent of the kind which is known. It has been used in the same manner with decided benefit in congestion of the nasal passages from acute catarrh and hay-fever; and has been applied to the cervix uteri to relieve the first pains of labor, to the ear for tinnitus aurium, and by inhalation to strengthen the vocal cords, relieve hoarseness and cough, and to improve the quality of the voice. It is injected hypodermically around the prepuce to prevent pain during circumcision, into the vicinity of the supra-orbital and infra-orbital foramina to cut short neuralgia of those nerves, and into hemorrhoids previous to their ligation. It may be injected into the bladder before lithotrity, into the urethra before the passage of sounds or catheters or to relieve chordee, and it is an excellent application to the gums of teething infants. To be efficient it must reach the terminal filaments of the sensory nerves in sufficient concentration. Rhus poisoning, by either the oak or ivy, is promptly controlled by the application of a 5 per cent. solution or oleate, freely over the affected surface. It gives instant relief from the burning and itching, and speedily reduces the dermatitis.

As a Mydriatic for ophthalmological use, Cocaine has peculiar qualities which make it the most serviceable of the class. The dilatation produced by it is great, is quickly attained, lasts only 12 to 20 hours, is promptly overcome by the application of Eserine, and is not accompanied by much photophobia. The latter is due to the fact that the cocainized pupil is not rigidly dilated (as with Atropine), but reacts to light. The accommodation, moreover, is greatly reduced, but not entirely paralyzed, and is quickly regained.

As an Antagonist Cocaine is of especial value in narcotic poisoning by Chloral or Opiates, where depression of the cardiac and respiratory centres exists. It is also indicated in chronic depressant poisoning from the

Bromides, and in spinal paralyses. In these cases it has all the advantag of Strychnine without its poisonous character.

EUCALYPTUS,—the leaves collected from rather old trees, *Eucalyptus globulus*, or Blue Gum-tree (nat. ord. Myrtaceæ), a native Australia, now grown in California, Italy, etc. The leaves are 6 to inches long, gray-green, lanceolately scythe-shaped, studded with o glands; of camphoraceous odor and bitter, aromatic taste. They conta tannic acid, a resin, a fatty acid and a *Volatile Oil*. The latter consis of three different oils which distil over at different temperatures, the fi product being named *Eucalyptol*, $C_{12}H_{20}O$, which by the action of Ph phoric Acid is converted into *Eucalyptene*, a substance allied to Cymen and *Eucalyptolen*.

Preparations.

Extractum Eucalypti Fluidum,—alcoholic. Dose, ♏x–ʒj.

Oleum Eucalypti,—the volatile oil, distilled from various species of Eucalyptus, t from *E. amygdalina* being considered wanting in Eucalyptol. Dose, ♏v–xxx in capsu or emulsion.

Tinctura Eucalypti (Unofficial),—Dose, ʒss–ij.

PHYSIOLOGICAL ACTION.

The taste of Eucalyptus is warm, aromatic, bitter and camphoraceous It increases the flow of saliva, the gastric juice and the intestinal secretions, and in small doses promotes appetite and digestion, increases th heart's action and lowers arterial tension. In large doses it produce eructations, indigestion, diarrhœa, nausea and vomiting, lowered temperature, great muscular weakness, and if continued will irritate and conges the kidneys, and induce a feverish state with symptoms of cerebral congestion, and great constitutional disturbance. Toxic doses are fatal b paralysis of respiration through direct action on the spinal cord.

It is powerfully antiseptic, and destructive to low forms of life, a stimulating expectorant and an efficient diaphoretic. By some authorities it i believed to reduce the size of an enlarged spleen, and to possess antimalarial properties by absorbing noxious germs as well as by draining th soil of its water, and by its aseptic emanations purifying the atmospher in its vicinity. It is largely cultivated in malarial districts for thes properties, and is reported to have rendered habitable a portion of th deadly Roman Campagna.

Eucalyptus is eliminated by the skin, bronchial mucous membran and the kidneys, imparts its odor to the breath and the urine, and is mor or less irritant at the points of its elimination.

THERAPEUTICS.

Eucalyptus is an efficient stomachic in atonic dyspepsia, chronic gastri and intestinal catarrh, and in conditions of the intestinal canal whic favor the development of worms. In chronic catarrhal conditions of the genito-urinary organs, the broncho-pulmonary mucous membrane, and especially the bladder, it is very useful, acting as a stimulant and disinfectant to the mucous membranes. It is equally beneficial in chronic bronchitis and bronchorrhœa, in cachectic states generally, and in convalescence from acute diseases. In hysteria, chorea and asthma it is beneficial, in the latter affection being advantageously smoked in cigarettes with Stramonium or Belladonna Leaves. In malaria as a reconstructant it is better than Quinine, and it has considerable utility in obstinate intermittents where it is desirable to stop the use of Cinchona preparations. As an antiseptic it is highly valued in dilute solution for application to ulcers, and as a substitute for Carbolic Acid on gauze in the antiseptic treatment of wounds. It is also used in dilute solution locally as a stimulating disinfectant in stomatitis and in the subacute stages of pharyngitis and tonsillitis. An aqueous preparation is highly recommended as a vehicle for alkaloids in solutions for hypodermic use, to prevent the development of the penicillium which rapidly destroys the alkaloid present.

EUONYMUS, Wahoo,—is the bark of *Euonymus atropurpureus*, a shrub of the nat. ord. Celastraceæ, growing in the U. S. Occurs in quills or curved pieces, about $\frac{1}{10}$ inch thick, of ashy-gray color and acrid, sweetish taste. It contains an amorphous, bitter principle named *Euonymin*, also Resins, *Euonic Acid*, and *Asparagin*, fixed oil, etc.

Preparations.

Extractum Euonymi.—Dose, gr. j–v.

Euonymin (Unofficial),—the eclectic preparation, consists of the fixed oil and resin, and is given in doses of gr. ss–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Euonymus is classed with Rhubarb, Jalap, Aloes, etc., as a tonic-astringent and resin-bearing purgative. It is said to be also diuretic and expectorant, and a very efficient cholagogue. Its cathartic action is similar to that of Rhubarb but milder. It has been employed with benefit in some cases of dropsy, also in habitual constipation, torpid liver, and pulmonary affections. In overdoses it will set up considerable gastro-intestinal irritation.

EUPATORIUM, Thorough-wort, Boneset,—the leaves and flowering tops of *Eupatorium perfoliatum*, an American plant of the nat. ord. Compositæ, having lanceolate leaves, two united at the base, each 4 to 6 inches long, of weak, aromatic odor and bitter, astringent taste. It contains a neutral, bitter principle, named *Eupatorin*, tannic acid, a volatile oil, etc.

Preparation.

Extracti Eupatorii Fluidum,—Dose, ♏x–ʒj.

Physiological Action and Therapeutics.

Boneset is a bitter tonic and efficient diaphoretic, also in full doses emetic and aperient. It has been supposed to have antiperiodic and tæniafuge powers. A warm infusion (Boneset tea) is a popular diaphoretic in remittent and typhoid fevers, and at the onset of an attack of acute catarrh or general cold. As a bitter tonic it may be used with advantage in dyspepsia and general debility. Its common name is derived from its supposed power to relieve the bone pains of dengue or the "break-bone fever."

Another variety of Eupatorium, *E. purpureum*, or Gravel-root, is reputed to have decided power over the uric acid diathesis.

EUPHRASIA, Eye-bright,—is a small annual plant of the nat. ord. Strophulariaceæ, growing in Europe and the U. S., odorless, of astringent taste, and containing *Euphrastic Acid*, tannin, etc. It was formerly of great repute in various eye-affections, and may be of utility as a mild astringent in catarrhal conjunctivitis. Its chief value, however, is to abort an attack of acute nasal catarrh with lachrymation, for which purpose a few drops of the tincture every two hours is remarkably efficient. In hay-fever also it is of decided utility in mitigating the catarrhal symptoms, and in the acute coryza of measles it will be found an excellent remedy. A tincture (1 to 9) of the fresh plant should be used, and given in doses of ♏j–v.

FEL BOVIS, Ox-gall,—the fresh gall or bile of *Bos Taurus*, is a dark-green, viscid liquid, of peculiar odor, bitter taste, and neutral or faintly alkaline reaction. Sp. gr. 1.018 to 1.028. It contains Glycocholate of Sodium, Taurocholate of Sodium, Cholesterin and coloring matter.

Preparations.

Fel Bovis Inspissatum, Inspissated Ox-gall,—100 parts of fresh Ox-gall evaporated to 15 parts, after straining. Dose, gr. v–xv.

Fel Bovis Purificatum, Purified Ox-gall,—3 of Ox-gall and 1 of Alcohol evaporated to pilular consistence, after standing 24 hours, decanting, filtering, etc. Dose, gr. v–xv.

Physiological Action and Therapeutics.

Bile is tonic, antiseptic and purgative. It assists in the emulsification of fats, and stimulates the absorbent powers of the mucous membrane. In the stomach it neutralizes the gastric juice, precipitating the pepsin, and is apt to cause nausea and vomiting. Recently it is found to act well in stimulating the resolution of hypertrophies when locally applied to the part, as the mammæ, tonsils, pannus, etc. It is used as a laxative in constipation when the natural secretion of bile is deficient, but has no advantage over other purgatives.

FERRUM, Iron, Fe,—is metallic Iron in the form of fine, bright and non-elastic wire.

FERRUM REDUCTUM, Reduced Iron,—consists of metallic Iron in fine powder, obtained by reducing the Sesquioxide by hydrogen at a dull red heat. It is a very fine, gray-black, lustreless powder, odorless, tasteless, and insoluble in water or alcohol, but soluble in dilute sulphuric acid with the evolution of nearly odorless hydrogen gas. Dose, gr. j–v, after meals.

Iron Compounds and their Preparations.

Liquor Ferri Acetatis,—is an aqueous solution of Ferric Acetate, containing 33 per cent. of the anhydrous salt. A dark red-brown transparent liquid, of acetous odor, sweetish and faintly styptic taste, reaction slightly acid. Action,—stimulant, ferruginous, little if any astringency. Used to prepare the following tincture.

Tinctura Ferri Acetatis,—has of the preceding 50 parts, Alcohol 30, Acetic Ether 20. A clear, dark red-brown liquid, of acetous odor, acidulous and slightly astringent taste, and slight acid reaction. Miscible with water in all proportions. Dose, ♏x–ʒij.

Syrupus Ferri Bromidi,—is a syrupy liquid containing 10 per cent. of Ferrous Bromide, $FeBr_2$. A pale-green, odorless liquid, of sweet ferruginous taste and neutral reaction. Action,—a sedative chalybeate tonic, especially recommended in nervous disorders, and by Da Costa in chorea. Irritant in large doses. Dose, ♏v–xxx.

Ferri Carbonas Saccharatus,—has at least 15 per cent. of ferrous carbonate. A greenish-gray powder, of sweetish taste at first, changing to ferruginous. Partially soluble in water, but soluble in dilute hydrochloric acid with evolution of CO_2. Action,—slightly stimulant to digestive tract. Dose, gr. ij–x with food.

Massa Ferri Carbonatis,—Vallet's Mass,—Sulphate of Iron 100, Carbonate of Sodium 110, Honey 38, Sugar 25, Syrup, Distilled Water, each q. s. ad 100 parts. Has 42 per cent. of ferrous carbonate. Action,—non-astringent, unirritating, ferruginous tonic. Dose, gr. iij–v after food.

Mistura Ferri Composita, Griffith's Mixture,—Sulphate of Iron 6, Myrrh 18, Sugar 18, Carbonate of Potassium 8, Spirit of Lavender 50, Rose water 900 parts. Is really a solution of the carbonate, with sulphate of potassium to suspend the iron salt. Is an excellent mixture, but disagreeable. Dose, ℥ ss.

Pilulæ Ferri Composita, Griffith's Pills,—Sulphate of Iron gr. ¾, Carbonate of Sodium gr. ¾, Myrrh gr. jss, Syrup q. s. in each pill answering in composition to the preceding. Dose, ij–vj.

Ferri Chloridum, Perchloride of Iron, $Fe_2Cl_6.12H_2O$,—orange-yellow, deliquescent, crystalline pieces, of styptic taste and acid reaction, freely soluble in water, alcohol or ether. Action,—strongly astringent, hemostatic. Never used internally.

Liquor Ferri Chloridi,—an aqueous solution of the preceding, containing 37.8 per cent. of the anhydrous salt, with some free HCl acid. Action,—strongly astringent and styptic. Rarely used internally. Dose, ♏ij–x. well diluted.

Tinctura Ferri Chloridi,—has of the preceding 35 parts in 65 of Alcohol. A bright, brownish liquid, of ethereal odor, styptic taste and acid reaction. Is used in Mistura Ferri et Ammonii Acetatis. One of the best preparations of iron. Action,—ferruginous tonic. Dose, ♏v–xx, in water, syrup or glycerin.

Ferri Citras, $Fe_2(C_6H_5O_7)_2.6H_2O$,—garnet-red, transparent scales, slowly soluble in water, not in alcohol. Action,—mildly stimulant. Dose, gr. ij–v. Formed by evaporating the following:

Liquor Ferri Citratis,—is an aqueous solution of the preceding, containing about 35½ per cent. of the anhydrous salt. A dark-brown liquid, of slightly ferruginous taste and acid reaction. Action,—as Ferri Citras. Dose, ♏v–xv.

Vinum Ferri Citratis,—made from the Citrate of Iron and Ammonium 4, Tincture of

Sweet Orange-peel 12, Syrup 12, stronger White Wine 72 parts. An iron elixir. Dos ʒj–ij.

Ferri Hypophosphis, $Fe_2(H_2PO_2)_6$, Ferric Hypophosphite,—a white or grayish-whi powder, odorless, tasteless, slightly soluble in water, freely so in HCl acid or in a solutio of sodium citrate. Action, ferruginous tonic. Dose, gr. v–x.

Ferri Iodidum Saccharatum,—a yellowish-white powder, very hygroscopic, odorles of sweetish, ferruginous taste, and slightly acid reaction, soluble in 7 of water at 59° F insoluble in alcohol. Action,—ferruginous tonic. Dose, gr. v–xxv in pill or elixir.

Pilulæ Ferri Iodidi,—made with Reduced Iron, Iodine, Licorice, Sugar, Acacia an Water, covered with a coating of Balsam of Tolu in Ether. "Blancard's Pills" on differ from these by being covered with a coating of reduced iron to protect the interi from oxidation, but it also protects them from the solvent action of the gastric jui Dose, 1 or 2 pills ter in die.

Syrupus Ferri Iodidi,—is a syrupy liquid containing 10 per cent. of ferrous iodide. transparent, pale-green liquid, of sweet, ferruginous taste and neutral reaction. Action, ferruginous tonic. Dose, ♏v–xxx.

Ferri Lactas, $Fe(C_3H_5O_3)_2.3H_2O$, Ferrous Lactate,—pale, greenish-white, cryst line grains, soluble in 40 of water at 59° F., freely in citrate of sodium, almost insolul in alcohol. Action,—feebly ferruginous tonic. Dose, gr. j–iij in pill or syrup. I constituent of Syrupus Hypophosphitum cum Ferro.

Liquor Ferri Nitratis,—is an aqueous solution of Ferric Nitrate, $Fe_2(NO_3)_6$, co taining about 6 per cent. of the anhydrous salt. A transparent, amber-colored liquid, acid, styptic taste, and acid reaction. Action,—medium as to irritation, astringent a hemostatic. Dose, ♏v–xv, well diluted.

Ferri Oxalis, Ferrous Oxalate, $FeC_2O_4.H_2O$,—a pale yellow, crystalline powder, very slightly soluble in water. Dose, gr. ij in pill.

Ferri Oxidum Hydratum, Ferric Hydrate, $Fe\,(HO)_6$, is a brown-red magma wholly soluble in HCl acid without effervescence. Should be freshly prepared from the Solution of Tersulphate of Iron 10 parts and Water of Ammonia 8 parts. Is the chemical antidote for Arsenic. Dose, a teaspoonful in water frequently repeated. The solutions should be kept ready for use.

Ferri Oxidum Hydratum cum Magnesia,—is made by mixing when required for use (1) Solution of Tersulphate of Iron 1000 grains, Water, 2000 grains. (2) Magnesia 150 grains, Water ℥xxxij. This should be administered as directed under the preceding head. It is a more convenient and a more efficient antidote for Arsenic than the simple ferric hydrate, as the excess of the alkaline precipitant is non-irritant and is itself an antidote to arsenic.

Emplastrum Ferri, Strengthening Plaster,—has of Hydrated Oxide of Iron, dried, 10 parts, Canada Turpentine 10, Burgundy Pitch 10, Lead Plaster 70.

Trochisci Ferri,—each has of Hydrated Oxide of Iron, dried, gr. v, Vanilla gr. $\frac{1}{10}$, Sugar, and Mucilage of Tragacanth. Dose, j–iij, ter die.

Ferri Phosphas,—Bright-green, transparent scales, of acidulous, saline taste, soluble in water, not in alcohol. Used as an adjuvant to laxative pills to prevent the after reactionary constipation. Dose, gr. v–x. Made by reaction between the Citrate of Iron and the Phosphate of Sodium.

Ferri Pyrophosphas,—Green, transparent scales, of acidulous taste, soluble in water but not in alcohol. Is almost tasteless and unirritating, and non-constipative. Dose, gr. ij–v. Made by reaction between the Citrate of Iron and the Pyrophosphate of Sodium.

Ferri Sulphas, Ferrous Sulphate, $FeSO_4.7H_2O$,—large, pale bluish-green prisms, efflorescent, of saline, styptic taste, and acid reaction, soluble in 1.8 of water at 59° F., insoluble in alcohol. Is chiefly used to make the Dried Sulphate and other preparations.

Ferri Sulphas Exsiccatus, Dried Ferrous Sulphate, $FeSO_4.H_2O$,—a grayish-white powder, nearly soluble in water, consisting of the preceding salt, heated gradually to 300° F., until it ceases to lose weight. The most astringent and irritating ferrous salt, but an excellent one in small doses. Is a constituent of Pil. Aloes et Ferri. Dose, gr. ss–ij in pill.

Ferri Sulphas Præcipitatus, Precipitated Ferrous Sulphate, $FeSO_4.7H_2O$,—is the same salt as above described, precipitated by Alcohol from solution in dilute sulphuric acid. Dose, gr. ss–ij.

Liquor Ferri Subsulphatis, Monsel's Solution,—is an aqueous solution of Basic Ferric Sulphate, $Fe_4O(SO_4)_5$, containing 43.7 per cent. of the salt. A dark reddish-brown, almost syrupy liquid, of very astringent but not caustic taste, and acid reaction, mixing with water or alcohol in all proportions without decomposition. Is but slightly irritating, and powerfully astringent, chiefly used locally as an astringent and hemostatic, but may be given internally in doses of ♏iij–x, well diluted.

Liquor Ferri Tersulphatis,—is an aqueous solution of Normal Ferric Sulphate, $Fe_2(SO_4)_3$, containing 28.7 per cent. of the salt. Has the same properties as described for the preceding, but a less sp. gr. Is used to make other preparations of Iron.

Ferri Valerianas, $Fe_2(C_5H_9O_2)_6$,—a dark, tile-red, amorphous powder, of faint, valerianic odor, and mildly styptic taste, insoluble in cold water, decomposed by hot water, readily soluble in alcohol. Of doubtful value as a valerianate. Dose, gr. j–iij in pill.

Preparations of Compound Iron Salts.

Ferri et Ammonii Citras, Ammonio-ferric Citrate,—prepared from Solution of Citrate of Iron 3 parts, Water of Ammonia 1, mixed and evaporated. Transparent, garnet-red scales, deliquescent, soluble readily in water, insoluble in alcohol. Dose, gr. ij–v.

Ferri et Ammonii Sulphas, Ammonio-ferric Alum,—pale, violet crystals, efflorescent, of styptic taste and slightly acid reaction, soluble in 3 of water at 59° F., insoluble in alcohol. Is the least astringent of the sulphates of iron, but more so than any of the salts formed by vegetable acids. Dose, gr. iij–xv.

Ferri et Ammonii Tartras, Ammonio ferric Tartrate,—made from Liq. Ferri Tersulphatis 90, Tartaric Acid 60, Aq. Ammoniæ 72, Ammonium Carbonate, Water q. s. Transparent, reddish-brown scales, slightly deliquescent, of sweetish and slightly ferruginous taste, very soluble in water, insoluble in alcohol. Contains an equivalent of about 25 per cent. of Ferric Oxide, and has but slight irritant qualities. Dose, gr. v–xx.

Ferri et Potassii Tartras, Potassio-ferric Tartrate,—made from Liq. Ferri Tersulphatis 12, Potassii Bitart. 4, Aq. Destil. 32, Aq. Ammoniæ, et Aquæ q. s. Transparent, garnet-red scales, slightly deliquescent, of sweetish and slightly ferruginous taste, very soluble in water, insoluble in alcohol. Is the least disagreeable in taste of all the iron preparations, and contains a little more ferric oxide than the preceding salt. Is but slightly astringent and is not constipating. Dose, gr. v–x.

Ferri et Quininæ Citras,—prepared from Ferri Citras 88, Quinine, dried, 12, Aq. Destil. q. s. ad 100, mixed and evaporated. Thin, transparent, yellowish-brown scales, slowly deliquescent, of bitter taste, slowly soluble in water, slightly soluble in alcohol. Contains 12 per cent. of dry quinine. Action,—astringent and stimulant to the digestive tract. Dose, gr. iij–v.

Liquor Ferri et Quininæ Citratis,—made directly from Ferri et Ammonii Citras 65, Quinine, dried, 12, Ac. Citric. 28, Alcohol 30, Aq. Destil. q. s. ad 200. A greenish-brown liquid, of bitter taste and slightly acid reaction. Contains 6 per cent. of quinine. Is very slowly soluble and of doubtful value. Dose, ♏v–xv.

Vinum Ferri Amarum, Bitter Wine of Iron,—has of the preceding 8 parts, Tinct. Aurantii Dulcis 12, Syrup 36, Stronger White Wine 44. May replace the various "elixirs of iron and calisaya." Dose, ʒj–iv.

Ferri et Strychninæ Citras,—Ferri et Ammonii Citras 98, Strychninæ 1, Ac. Citric. 1, Aq. Destil 120, mixed and evaporated. Transparent, garnet-red scales, deliquescent, readily soluble in water, slightly so in alcohol. Contains 1 per cent. of Strychnine. Action,—astringent and stimulating. Dose, gr. j–iij.

Syrupus Ferri, Quininæ et Strychninæ Phosphatum, Syrup of the Phosphates of Iron, Quinine and Strychnine. [Described under *Phosphorus*.]

Syrupus Hypophosphitum cum Ferro, Syrup of Hypophosphites with Iron. [Described under *Phosphorus*.]

Mistura Ferri et Ammonii Acetatis, Basham's Mixture,—is properly a Liquor, and is prepared from Tr. Ferri Chloridi 2, Ac. Acet. Dil. 3, Liquor Ammonii Acet. 20, Elixir Aurantii 10, Syrup 15, Water 50 parts. An elegant and agreeable preparation, having some power as a diuretic and a diaphoretic. Dose, ℥ij–v, well diluted.

Unofficial Preparations of Iron.

Ferri Albuminas, Albuminate of Iron,—a cinnamon-brown powder, soluble in water acidulated slightly with HCl. Dose, gr. x–xxx, in simple aqueous solution, or in pill.

Ferri Arsenias, Ferrous Arseniate, $Fe_3As_2O_8$,—a green, tasteless powder, insoluble in water, soluble in HCl acid. Its activity is due to the arsenic alone. Dose, gr. $\frac{1}{16}$–$\frac{1}{6}$.

Ferrum Dialysatum, Dialysed Iron,—composition varies from $Fe_2Cl_6.12Fe_2O_3$ to $Fe_2Cl_6.95Fe_2O_3$, and is a 10 per cent. solution of Ferric Oxychloride in water. Prepared by treating a solution of Chloride of Iron with Ammonia, ferric hydrate being precipitated, this being dissolved by agitation is placed in a dialyzer and suspended in water, which is renewed as long as it shows a trace of HCl acid. It is a reddish-brown liquid, free from astringent, styptic taste, but is a very feeble chalybeate, incapable of absorption except by change into a hydrated sesquioxide in the alimentary canal. Is used as a chalybeate, and as an antidote to Arsenic, but is not considered an eligible preparation. Dose, ♏x–xxx.

Syrupus Ferri et Manganesii Iodidi, Syrup of the Iodide of Iron and Manganese,—is a pale, straw-colored liquid, containing a little sulphate of potassium, and in each fluid ℥ has 50 grains of the mixed iodides in the proportion of Iodide of Iron 3 parts, to 1 o Iodide of Manganese. Dose, ♏x–xxx–ʒj.

Syrupus Ferri et Manganesii Phosphatis, Syrup of the Phosphate of Iron and Manganese,—as used by Dr. Simpson of Edinburgh, contains in each ʒ of syrup 2 grains o the Phosphate of Iron and 1 grain of Phosphate of Manganese. Dose, ʒj.

Mistura Ferri Aromatica,—Pale Bark 4, Calumba 2, Cloves 1, Iron wire 2, Tr. Cardamomi Co. 12, Tr. Aurantii Cort. 2, Aq. Menth. Pip. 50,—Macerate the first 4 in th last one for 3 days, filter, add the tinctures and make up to 50. Dose, ℥j–ij.

Mistura Ferri Laxans,—Ferri Sulph. gr. ij, Magnesii Sulph. ʒj, Ac. Sulphurici Dil ♏iij, Spt. Chloroformi ♏xx, Aq. Menth. Pip. ad. ℥j.

Mistura Ferro-salina,—Magnesii Sulph. ℥j, Potassii Bitart. ʒj, Ferri Sulph. Exsic gr. x, Aquæ quart j. Dose, a wineglassful.

NOTES ON THE PREPARATIONS.

OXIDES AND CARBONATES, including Ferrum Reductum, Ferri Carbonas Saccharatus, Mistura Ferri Composita, Pil. Ferri Comp., Massa Ferri Carb., Ferri Oxidum Hydratum, Ferri Oxidum Hyd. cum Magnesia, and Mist. Ferri Aromatica,—possess the hæmatinic action of iron with but little astringency, and are therefore selected to restore the blood in anæmia, chlorosis and amenorrhœa, with tendency to dyspepsia and constipation. The HYDRATED OXIDES are only used as antidotes in arsenical poisoning. FERRUM REDUCTUM is one of the best forms for internal use, but gives rise to sulphuretted or phosphoretted eructations which are very disagreeable. The SUBCARBONATE is little more than the Red Oxide, but in the Massa Ferri Carb. the oxidation is prevented by the sugar.

MINERAL ACID SALTS and their preparations comprise the Sulphate in its 3 forms, the solutions of the Subsulphate and Tersulphate, the Phosphate, Pyrophosphate and Hypophosphite, the Chloride and its preparations and the Liquor Ferri Nitratis. They are characterized by thei astringent and corrugating action, and are used locally especially a hemostatics, the Solution of the Subsulphate being preferred for topical use as it is powerfully styptic but not corrosive. The *Tincture of th Chloride* is one of the best preparations for internal use, and is mos agreeable in the form of Creuse's tasteless preparation, which is made a follows,—Liq. Ferri Chloridi ℥j, Acidi Citrici 544 grains, Sodii Carb. 1000 grains or q. s., Aquæ Destil. ℥j, Alcoholis q. s. Dissolve the citri acid in the distilled water and heat to the boiling point, gradually addin sodium carbonate until the acid is saturated; mix this with the iron solu tion and make up to ℥iv with alcohol. Of the *Phosphates* the best i the Pyrophosphate, which is easily assimilated, readily soluble and entirel unirritating.

VEGETABLE ACID SALTS and their preparations comprise the Lactate, Citrate and its preparations, Oxalate, and the preparations of the Acetate and the Tartrate. They are the least irritating to the stomach but are also the least efficient as chalybeates. They may be administered in white wines, or with alkalies and vegetable acids in effervescing mixtures.

The Albuminate is considered by several authorities to be the most readily assimilated of all the iron preparations.

OTHER COMPOUNDS are those in which Iron is combined with bodies equally active, as the Syrup of the Bromide, the preparations of the Iodide, those with Quinine, Strychnine, etc. Generally these preparations are used for a two-fold purpose, namely to relieve anæmia and at the same time act upon the specific ailment on which the anæmia depends.

PHYSIOLOGICAL ACTION.

Metallic Iron is not inert, for in the stomach it acquires molecular activity through its oxidation, setting hydrogen free. It is a normal constituent of the blood (1 part to 230 of red corpuscles), existing probably as an oxide in combination with hæmatin, which is not formed without it. It is also found in the bile, lymph, chyle, gastric juice, in the pigment of the eye, in the milk and the urine. Given medicinally in small doses it promotes appetite and digestion, and improves the quality of the blood, increasing the number of the red corpuscles. In the stomach all the salts of iron are converted into the Chloride and in the duodenum into an alkaline albuminate, entering the blood along the whole length of the alimentary canal. Large doses, or small ones long-continued are directly unfavorable to digestion, nausea and vomiting are produced by the soluble preparations, the per-salts are actively irritant, the Iodide, Chloride, Nitrate and Sulphate being active poisons, highly astringent, and act injuriously on the teeth. Only a small portion of iron is absorbed, the rest being eliminated by the intestinal canal, blackening the fæces by conversion into a sulphide. Of the portion absorbed from the alimentary canal, only a small part reaches the systemic circulation and is eliminated by the kidneys, the greater part being excreted by the liver with the bile.

Locally most of the iron salts are more or less constringing to the tissues and the mucous membranes, acting as hemostatics and astringents by virtue of their power to coagulate albumen, and acting injuriously on the teeth. The Tincture of the Chloride is considered diuretic.

Incompatibles.

Alkalies and their carbonates, acids, acidulous salts and vegetable astringents are incompatible with most preparations of iron, the latter group being so by virtue of their tannic and gallic acids which form a deep blue-black precipitate (tannate of iron) with the per-salts. The Tincture of the Chloride is decomposed by alkalies, alkaline earths and their carbonates, astringent vegetable infusions, and by mucilage of acacia, which latter produces therewith a brown, semi-transparent jelly.

THERAPEUTICS.

The chief indication for the internal administration of Iron is anæmia; when plethora exists it is contraindicated. It should always be given after meals, and occasionally suspended for a time, to avoid deranging the stomach. When appetite and digestion are promoted by Iron it will do the greatest amount of good, many authorities holding that the principal benefit derived from its use, even in anæmia, is due to its stimulating digestion and the primary assimilation. The Sulphate is here probably the most efficient salt and is well used in combination with aloes when there exists any intestinal torpor, especially as it increases the cathartic power of the latter drug, economizing it, and conferring upon it a permanence of action, which alone it does not possess. In pseudo-leucocythæmia, chorea of anæmic girls at the age of puberty, epilepsy and neuralgia of the anæmic, amenorrhœa and other menstrual disorders of the same class of subjects, and in acute rheumatism of pale, cachectic persons, the chalybeates are generally very efficient remedies, especially the Tincture of the Chloride. The same preparation is extensively employed in erysipelas and diphtheria with good results. In albuminuria with chronic disease of the kidneys the Tinctures of the Chloride and of the Acetate are useful as chalybeate diuretics. In many cardiac diseases of the anæmic, fatty heart, weak heart, dilatation, mitral disease, etc., ferruginous preparations are often of signal advantage. In the syphilitic cachexia, chancroid, and sloughing phagedena, the Iodide gives good results, particularly when the subject is one of debilitated constitution. In the nocturnal incontinence of children the Syrup of the Iodide is one of the most efficient remedies. In all chronic affections of the respiratory organs, when hemorrhage is not existing or threatened, the Phosphate of Iron, Quinine and Strychnine is used with much benefit. In passive hemorrhages, especially when due to anæmia, the Tincture of the Chloride is very effective, and in all active bleeding the Solution of the Subsulphate locally used is a prompt and efficient hemostatic. A weak solution of this preparation (ʒj ad ℥viij) used in the form of spray is the most serviceable astringent in obstinate epistaxis, and in hematemesis the same solution may be swallowed in small quantities at short intervals. In chronic diarrhœa and dysentery the Solution of the Nitrate is an efficient astringent, and a weak solution of the Chloride is used as a rectal injection against thread-worms.

In arsenical poisoning the most effective antidote is the Hydrated Oxide, which forms with Arsenious Acid an almost insoluble compound. The solutions used in its preparation should be kept on hand and only mixed when wanted for use.

FICUS, Fig,—is the fleshy receptacle of *Ficus Carica*, bearing fruit upon its inner surface. The fig-tree is a member of the nat. ord. Urticaceæ and a native of the shores of the Levant, but is cultivated in Southern Europe and in other warm countries. Figs contain about 62 per cent. of grape sugar, also gum, fat, etc., and are a constituent of the official Confectio Sennæ.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Figs are demulcent, laxative and nutritious. They are used in their fresh state as an aliment, but if eaten in quantity may produce flatulence, enteralgia and diarrhœa. They are chiefly used as an article of diet in habitual constipation, but may be employed as an ingredient of demulcent decoctions, and locally as a poultice to gum-boils.

FŒNICULUM, Fennel,—is the fruit of *Fœniculum vulgare*, a European cultivated plant of the nat. ord. Umbelliferæ. It is $\frac{1}{6}$ to $\frac{1}{3}$ of an inch long, oblong, slightly curved, separable into 2 mericarps, and having 5 ribs, and several oil-tubes, odor and taste aromatic. It contains a volatile oil, united with a terpene, and is a constituent of Pulvis Glycyrrhizæ Compositus.

Preparations.

Oleum Fœniculi,—the volatile oil a light-yellow colored liquid, having the odor of fennel, a warm taste and neutral reaction, soluble in alcohol. It is an ingredient of Spiritus Juniperi Compositus. Dose, ♏ij–v.

Aqua Fœniculi,—contains 2 parts of the oil in 1000 of distilled water percolated through cotton. Dose, ʒss–℥j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Fennel is an aromatic stomachic and a mild stimulant. It is chiefly used as an agreeable carminative in flatulence and colic, and as a corrigent to Senna, Rhubarb, and other disagreeable medicines. An infusion is often used as an enema to expel flatus in infants.

FRANGULA, Buckthorn,—the bark, collected at least one year before being used, of *Rhamnus Frangula*, or Alder Buckthorn, a European shrub of the nat. ord. Rhamnaceæ. Occurs in quilled pieces $\frac{1}{25}$ inch thick, outer surface of gray-brown color, with numerous small warts. It contains several principles, of which the only important one is *Frangulin*, or *Rhamnoxanthin*, a lemon-yellow, odorless and tasteless glucoside, insoluble in water and but sparingly so in alcohol or ether, and thought to be identical with Cathartin, the active principle of Senna. Another species of the genus Rhamnus is described under the title CASCARA SAGRADA, see *ante*, p. 158.

Preparation.

Extractum Frangulæ Fluidum,—Dose, ʒss–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Frangula-bark when fresh is a violent irritant to the gastro-intestina tract, producing vomiting, purging, and much pain. The old dried bar is a safe purgative without irritant qualities, and is much used in the constipation of pregnancy, and other conditions requiring purgation. The fluid extract is the best form for administration.

FUCHSIN, Roséine, Magenta, Anilin Red (Unofficial),—i the Hydrochlorate of Rosanilin, $C_{20}H_{19}N_3.HCl$, occurring in brilliant elongated crystals having a green lustre, readily soluble in water an therein making a bright red solution. Given internally it has produce salivation, vomiting, and diarrhœa; and when injected intravenously i has caused trembling, staggering, albuminuria and fatty degeneration o the kidneys, symptoms which are thought to be possibly due to th presence of Arsenic or Anilin as impurities. It imparts a magenta colo to the urine, and is excreted by the kidneys, liver and salivary glands. I has been found to be very efficient in reducing albuminuria, in man instances having entirely arrested it. It is best administered in pill wit a vegetable extract as Licorice or Gentian, and in doses of gr. ½–iv according to age.

FUCUS VESICULOSUS, Bladder-wrack, Sea-wrack (Un official),—is a perennial plant of the nat. ord. Algæ, growing on th shores of the Atlantic and Pacific Oceans as a sea-weed. It has a flat lea with a midrib throughout its length, and small spherical vesicles, fille with air, in the leaf. It contains mucilage and much Soda in saline combination, also Iodine, but less of the latter than other algæ growing i deeper water. A decoction of the fresh plant is the best form for administration.

FUCUS VESICULOSUS is one of a number of marine plants which ar used in various parts of the world as food for man and cattle and a manure. The species under consideration is considered alterative an tonic, and has been employed in goitre, glandular and joint enlargement and psoriasis, but especially to produce absorption of adipose tissue in th obese. An extract is sold under the title "Anti-fat."

GALBANUM,—is a gum-resin obtained from *Ferula galbaniflua* an Asiatic plant of the nat. ord. Umbelliferæ, and probably from othe allied plants. It occurs in minute tears, agglutinated into a hard mass of balsamic odor and acrid, bitter taste. It contains a *Volatile Oil* isomeric with Turpentine, a Gum, and a mixture of Resins which yield b dry distillation a blue oil and *Umbelliferon*, a tasteless substance in satiny crystals. Dose, gr. x–xx, in pill or emulsion.

Preparations.

Pilulæ Galbani Compositæ,—each pill contains of Galbanum 1½ grain, Myrrh 1½ grain, Asafetida ½ grain, and Syrup. Dose, ij–iij.

Emplastrum Galbani,—Galbanum 16, Turpentine 2, Burgundy Pitch 6, and Lead-plaster 76 parts.

Galbanum is also an ingredient of Emplastrum Asafœtidæ.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Galbanum is stimulant, expectorant and antispasmodic, acting much like Ammonia and Asafetida, and usually given with either of these substances. It is used in chronic bronchitis and catarrh of mucous membranes generally, in amenorrhœa and chronic rheumatism. The plaster is used as a stimulant application to indolent swellings.

GALLA, Nutgall,—is an excrescence on *Quercus lusitanica*, the Dyer's Oak, a shrub of the nat. ord. Cupuliferæ, growing in Western Asia, and is caused by the puncture and deposited ova of the insect *Cynips Gallæ tinctoriæ*. Galls are hard, globular bodies, from ½ to ¾ inch in diameter, of blackish-gray color, tuberculated on the surface, having a central cavity, and an intensely astringent taste. They contain from 15 to 75 per cent. of *Tannic Acid*, about 5 per cent. of *Gallic Acid*, and other unimportant constituents. Dose, gr. v–xv.

Preparations.

Tinctura Gallæ,—strength 20 per cent. Dose, ʒ ss–iij.

Unguentum Gallæ,—strength 10 per cent.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action of Nut-galls is powerfully astringent, due to the Tannic and Gallic Acids contained in them. Having no special action or use of their own, their qualities may be learned by consulting the articles ACIDUM TANNICUM and ACIDUM GALLICUM, *ante*, pages 74 and 63.

GAULTHERIA, Wintergreen,—is the leaf of *Gaultheria procumbens*, an American evergreen plant of the nat. ord. Ericaceæ, having a peculiar flavor, a fragrant odor, and an aromatic and astringent taste. Its active principle is the *Volatile Oil*, which is official. It also contains Tannic Acid, Arbutin, Urson, Ericolin, etc.

Preparations.

Oleum Gaultheriæ, Oil of Wintergreen,—is the volatile oil, a liquid of peculiar and aromatic odor, sweetish, warm taste, and a slightly acid reaction. It is readily soluble in alcohol, and consists of *Methyl Salicylate* 90 per cent., and *Gaultherilene*, a hydrocarbon, 10 per cent. Dose, ♏iij–x.

Spiritus Gaultheriæ,—has of the oil 3 per cent., dissolved in 97 of alcohol. Used for flavoring. Dose, ʒ ss–ij.

PHYSIOLOGICAL ACTION.

Gaultheria is stimulant and slightly astringent. Its chief value is a one of the sources of the oil named after it, which is also found in th sweet birch and many other plants, and, containing so large a proportion of Methyl Salicylate or Methylsalicylic Acid, is powerfully antiseptic and antipyretic. In large doses it is irritant to the stomach, in one case ℥ having caused death by violent gastritis.

THERAPEUTICS.

Oil of Gaultheria is used successfully as a substitute for Salicylic Acid in many conditions, especially in rheumatic and gouty disorders. The plant has been used as an emmenagogue and a galactagogue, but its principal employment is in the form of the spirit as an agreeable flavoring agent.

GELSEMIUM, Yellow Jasmine,—is the rhizome and rootlets o *Gelsemium sempervirens*, a climbing plant of the nat. ord. Loganiaceæ, with showy yellow flowers, which grows in the forests of the southern U. S. forming festoons from one tree to another. The rhizome is cylindrical, long, about an inch thick, of a light yellowish-brown color, an aromatic, heavy odor and a bitter taste. It contains a volatile oil, a resin and an alkaloid *Gelsemine* in combination with *Gelsemic Acid*. Dose, gr. ij–xx.

Preparations.

Extractum Gelsemii Fluidum,—alcoholic. Dose, ♏ij–xx.

Tinctura Gelsemii,—strength 15 per cent. Dose, ♏x–ʒj.

Gelsemina. Gelsemine, $C_{11}H_{19}NO_2$ (Unofficial),—an amorphous, colorless, inodorous nearly insoluble solid, of intensely bitter taste, and strong basic properties, neutralizing the strongest acids and with them forming soluble salts. Dose, gr. $\frac{1}{60}$–$\frac{1}{20}$.

PHYSIOLOGICAL ACTION.

Gelsemium is a powerful motor-depressant, causing paralysis of motility and depression of sensibility by central action on the spinal cord. It is also antispasmodic and diaphoretic. In moderate doses it produces languor, slowing of the cardiac rate, enfeebled muscular action, impaired sensibility, drooped eyelids and dilated pupils, with some diaphoresis. In toxic dose, as a teaspoonful of the fluid extract, it produces vertigo, diplopia, drooped eyelids and dilated pupils (paralysis of 3d nerve), labored respiration, slow and feeble heart, dropped jaw, staggering gait, extreme muscular weakness and almost complete anæsthesia, profuse diaphoresis, loss of articulation, and death by asphyxia from paralysis of the muscles of respiration, consciousness being preserved until CO_2 narcosis sets in. Convulsions occur in animals with backward movements, but not in man. Motion is affected before sensibility in warm-blooded animals, sensibility before motion in frogs.

Gelsemium is not an arterial depressant, although it lowers the heart-rate, and is not irritant to the gastro-intestinal tract, but it produces a decided lowering of the body temperature. The effects of a moderate dose pass off in about three hours.

Antagonists and Incompatibles.

Morphine is the most complete antagonist, so are also Digitalis, Ammonia, Alcohol, and to some extent the tincture of Xanthoxylum fraxineum. Emetics, heat, faradization of the respiratory muscles and artificial respiration are measures of prime importance. The caustic alkalies and tannic acid are chemically incompatible.

THERAPEUTICS.

Gelsemium is indicated in all conditions of exalted nerve function, and contra-indicated whenever there is a weak heart. It is best used in cerebro-spinal meningitis, mania with great motor excitement and persistent insomnia, delirium tremens, many forms of sleeplessness, pneumonia and pleurisy if the heart be strong, coughs of convulsive and spasmodic character, neuralgia of the fifth nerve, remittent fever, after-pains, ovarian neuralgia, dysmenorrhœa, irritable bladder of women, and incontinence of urine from spasm of the vesical muscular fibres. In most of these affections the remedy must be pushed to the inducing of some physiological symptoms, but its action should not be carried beyond the production of drooped eyelids, diplopia and muscular debility. It has also been used with varying success in intercostal neuralgia, myalgia, sciatica, spasmodic asthma, sick headache, eczema, pruritus and tetanus. Its especial field, however, is in remittent and typho-malarial fevers and cerebro-spinal meningitis. It is not suitable to low fevers and has not sufficient power as a cardiac depressant to be of much use in sthenic forms.

GENTIANA, Gentian,—is the root of *Gentiana lutea*, the Yellow Gentian, one of a numerous family of plants (nat. ord. Gentianaceæ), which inhabit the mountainous districts of Europe. An American species, *G. Catesbæi*, Blue Gentian, is considered nearly equal in value to the official species. Gentian occurs in cylindrical pieces or longitudinal slices of the root, which is ½ to 1 inch thick and several inches long, brown externally, yellowish-brown within, of faint, peculiar odor, and taste at first sweetish, afterwards persistently bitter. It contains an active, bitter glucoside, *Gentopicrin* or *Gentianin*, $C_{20}H_{30}O_{12}$, which is crystalline and soluble in water, also an inert, amorphous body *Gentianic* or *Gentesic Acid*, gum, considerable sugar, and a trace of a volatile oil, but no tannin.

Preparations.

Extractum Gentianæ,—aqueous. Dose, gr. j–v.

Extractum Gentianæ Fluidum,—Dose, ʒ ss–j.

Tinctura Gentianæ Composita,—Gentian 8, Bitter Orange Peel 4, Cardamom 2, Diluted Alcohol to 100. Dose, ʒ ss–ij.

Unofficial Preparations.

Infusum Gentianæ Compositum,—contains Gentian 10, Bitter Orange Peel 2½, Coriander 2½, Alcohol 40, Water to 320. Dose, ʒ j–℥ j.

Mistura Gentianæ Alkalina,—Ac. Hydrocyan. Dil. ♏ iij, Sodii Bicarb. gr. xv, Infusum Gentianæ Co. to ℥ j. One dose.

Mistura Gentianæ et Sennæ,—Infusum Sennæ ʒ iij, Tr. Cardamomi Co. ʒ j, Infusum Gentianæ Co. ʒ vj. One dose.

PHYSIOLOGICAL ACTION.

Gentian is a simple bitter without astringency or aroma, its action corresponding to that of Calumba (see *ante*, page 145), but it is more apt to disagree with the stomach. In addition, like Cornus, a member of the same class, it has considerable repute as an antiperiodic and febrifuge.

THERAPEUTICS.

Gentian has been considered a valuable tonic throughout all Europe from the earliest historical times. It is highly esteemed as a stomachic tonic in dyspepsia connected with a gouty diathesis, in hysteria, jaundice and in convalescence from acute diseases and from malarial fever. The compound tincture is an excellent vehicle for cod-liver oil, and the non-unofficial infusion is a good vehicle for the administration of chalybeates, mineral acids and neutral salts. The discoloration which iron salts make with gentian preparations is probably due to Gentesic Acid and not to tannin, as it contains none of the latter.

GERANIUM, Cranesbill-root,—is the rhizome of the indigenous perennial *Geranium maculatum* (nat. ord. Geraniaceæ). It is 2 or 3 inches long, horizontal, contorted and tuberculated, with thin, fragile rootlets, inodorous, taste astringent. Its active constituents are tannic and gallic acids.

Preparation.

Extractum Geranii Fluidum,—Dose, ♏ v–ʒ j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Geranium is an efficient astringent, and its action corresponds with that of Tannic Acid (see *ante*, page 74). Having no unpleasant taste it is a useful agent for infants and others having delicate stomachs, and is a very popular domestic remedy in many parts of the country. It is especially used in diarrhœas, dysentery, cholera infantum, hemorrhages, relaxed conditions of mucous membranes, gleet and leucorrhœa.

GLYCERINUM, Glycerin,—is a liquid obtained by the decomposition of fats or fixed oils, containing not less than 95 per cent. of absolute Glycerin, $C_3H_5(HO)_3$, which exists in fats and fixed oils in combination with the fatty acids.

Glycerin is clear and colorless, of syrupy consistence, hygroscopic, non-drying, odorless, of warm and very sweet taste, neutral reaction, sp. gr. 1.250, soluble in water and alcohol, but insoluble in ether, chloroform and fixed oils. It dissolves tannin, gallic acid, carbolic acid, salicylic acid, bromine, iodine, etc., and with the aid of heat metallic salts and oxides, alkaloids, etc. With strong Nitric Acid it forms Nitro-glycerin, and it reduces potassium permanganate, chromic acid and chlorinated lime with great violence. An impurity frequently present in it is *Acrolein*, formed by the use of too high a heat in its manufacture, and which is very acrid and poisonous. Glycerin is a constituent of Glyceritum Amyli, Glyceritum Vitelli, Pilulæ Phosphori, Mucilago Tragacanthæ, Massa Hydrargyri, and several extracts and fluid extracts. Dose, ʒj–ij, diluted.

PHYSIOLOGICAL ACTION.

Glycerin is highly antiseptic, abstracts water from tissues with which it comes in contact, and unless pure is often very irritating to the skin. It is freely absorbed by all surfaces, cutaneous and mucous, and is decomposed in the system, passing out as formic and other acids. On the stomach it has no particular action, but in large quantities it is laxative and is said to cause the solution of the red blood corpuscles and hæmoglobinuria. The urine of persons using glycerin contains a body which acts like sugar in the copper and fermentation tests, but is not sugar. Glycerin is a good emollient and is considered nutritive by many authorities.

THERAPEUTICS.

Glycerin has been used as a substitute for Cod-liver Oil in wasting diseases, but with little benefit. It has also been tried as a remedy in diabetes, but with unsatisfactory results so far as reported, except as a sweetening substitute for sugar in the dietary of those afflicted with that disease. It is said to be fatal to intestinal trichinæ, and to be an efficient internal remedy in acne and flatulence. In chronic constipation, most excellent results are obtained from rectal enemata of Glycerin, or from suppositories thereof made with soap or gelatin $(\frac{1}{10})$ to give them consistency. As a vehicle it is used for many drugs, and is a good ingredient of solutions for hypodermic use, promoting the solubility of many alkaloids and acting as an antiseptic. It is also employed to preserve and aid the action of the digestive ferments, Pepsin and Pancreatin, as well as to prevent the decomposition of vaccine lymph.

Locally it is valuable in many cutaneous affections as an emollient and softening agent. In acute coryza it gives great relief if applied by a brush or as a spray to the nasal mucous membrane. It is used on cotton to the cervix uteri as a depleting agent, and mixed with an infusion of flaxseed as an enema to relieve tenesmus in acute dysentery. With tincture of Benzoin it is an excellent application to chapped hands or lips an fissured nipples. In the external auditory canal it is usefully employe to soften cerumen, diminish the secretion of pus, deplete the tissues, an keep the surface moist. [For other uses of Glycerin in combination se Glyceritum Vitelli, Glyceritum Amyli, and Glyceritum Acidi Tannic under the titles of their respective bases.]

GLYCYRRHIZA, Liquorice Root, —is the root of *Glycyrrhiz glabra*, a plant of the nat. ord. Leguminosæ, native in southern Europ and Asia, but largely cultivated in many other parts. It occurs in lon pieces, ⅕ to 1 inch thick, longitudinally wrinkled, of a grayish-brow color externally, tawny-yellow internally, pliable and tough, and of somewhat acrid, sweet taste. It contains a yellow, amorphous glucosid *Glycyrrhizin*, $C_{24}H_{36}O_9$, also *Glycyrrhizic Acid*, *Asparagin*, sugar, resi gum, etc. Glycyrrhizin when boiled with dilute acids yields glucose an a very bitter substance named *Glycyrretin*.

Preparations.

Extractum Glycyrrhizæ,—is the commercial extract of the root, occurring in glos black rolls, of sweet, peculiar taste. Not less than 60 per cent. of it should be soluble cold water.

Extractum Glycyrrhizæ Purum,—made with Aqua Ammonia and Water, by perco tion and evaporation to a pilular consistence. Dose, indefinite.

Extractum Glycyrrhizæ Fluidum,—made with Aqua Ammonia and diluted Alco Dose, indefinite.

Mistura Glycyrrhizæ Composita, Brown Mixture,—has of the Pure Extract 3 pa Sugar 3, Acacia 3, Tr. Opii Camph. 12, Vinum Antimonii 6, Spt. Ætheris Nitrosi 3, Water 70. Dose, ʒj–℥ss.

Pulvis Glycyrrhizæ Compositus,—Senna 18, Glycyrrhiza 16, Fennel 8, Washed phur 8, Sugar 50 parts. Dose, a teaspoonful.

Trochisci Glycyrrhizæ et Opii,—each has of Extract of Glycyrrhiza gr. ij, Extract Opium gr. $\frac{1}{20}$, Acacia, Sugar and Oil of Anise. Dose, j–ij every hour.

Glycyrrhizinum Ammoniatum, Ammoniated Glycyrrhizin,—the sweet principle Liquorice rendered soluble and therefore tasteable by Ammonia, believed to be the f in which Glycyrrhizin exists in the root. Occurs in brownish-red scales, very sweet, soluble in water or in alcohol. Dose, gr. v–xv. Is a constituent of *Velatine*, for wh see page 182.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Liquorice is demulcent and mildly laxative. It has an agreeable tas and increases the flow of saliva and mucus when slowly chewed or sucke the increased secretions acting as emollients to the throat. It is used many pharmaceutical preparations, covering the taste of Senna, Seneg Hyoscyamus, Turpentine, Chloride of Ammonium, bitter Sulphates, a to some degree the bitterness of Quinine. The powdered extract or r is used as an excipient in pills and troches. The Compound Mixture an efficient expectorant, much employed in acute bronchitis and catarr laryngitis, but owing its power over cough mainly to the Opium contai in it. The Compound Powder is a gentle laxative, of which Senna is most active ingredient. The Troches are used for cough, but must be carefully prescribed to children as they contain gr. $\frac{1}{20}$ of Extract of Opium in each.

GOSSYPIUM, Cotton,—is the hair of the seed of *Gossypium herbaceum*, and of other species of *Gossypium* (nat. ord. Malvaceæ), freed from adhering impurities and deprived of fatty matter. In this form it is known as *Purified* or *Absorbent Cotton*, is insoluble in water, alcohol or ether, but is soluble in an ammoniacal solution of Cupric Sulphate. Cotton-fibre is familiar in appearance to every one, but when examined microscopically, it shows as flattened, hollow and twisted bands, spirally striate, and slightly thickened at the edges. It is a modification of Cellulose, $C_{12}H_{10}O_{10}$, and corresponds therewith in all its ordinary chemical properties.

Preparations of the Cotton Plant.

Gossypii Radicis Cortex, Cotton Root Bark,—thin bands or quilled pieces, brownish-yellow exteriorly, white interiorly, of slightly acrid and astringent taste. Dose, gr. xxx–ʒj.

Extractum Gossypii Radicis Fluidum,—made with Glycerin and Alcohol, by maceration and percolation. Dose, ♏xxx–ʒj.

Oleum Gossypii Seminis, Cotton-seed Oil,—the fixed oil expressed from the seeds and purified. Is yellow, odorless, of bland taste and neutral reaction, soluble in ether, but slightly soluble in alcohol. Is introduced into the pharmacopœia for the reason that it constitutes most of the "Olive Oil" sold in foreign-shaped bottles and under foreign appearing labels. It is directed to be used in the official Liniments of Ammonia, Lime, Camphor, and Sub-acetate of Lead.

Pyroxylinum, Pyroxylin, Soluble Gun-cotton,—is official for the purpose of making Collodium. It is prepared by macerating Cotton in a mixture of Sulphuric and Nitric Acids, washing, draining and drying.

Collodium, Collodion,—made by dissolving Pyroxylin 4, in Ether 70 and Alcohol 26 parts.

Collodium Flexile, Flexible Collodion,—Collodion 92, Canada Turpentine 5, Castor Oil 3 parts.

Collodium Stypticum, Styptic Collodion,—Collodion 55, Ether 20, Alcohol 5, Tannic Acid 20 parts.

Collodium cum Cantharide, Cantharidal Collodion,—Cantharides 60, Flexible Collodion 85, Chloroform q. s.

PHYSIOLOGICAL ACTION.

COTTON-ROOT is believed to be an efficient emmenagogue and oxytocic by Southern practitioners, also somewhat of a galactagogue, but experiments on pregnant animals have not confirmed this view of its action. The Oil of the seed is very bland and may be applied to all the purposes for which Olive Oil is used. Cotton itself, when freed from oily matter, is remarkably absorbent of water, and is a good agent for excluding air from injured surfaces. PYROXYLIN is highly inflammable, and explosive at 300 F. COLLODION is also inflammable, and rapidly dries on exposure to the atmosphere by evaporation of its ether, leaving a transparent film of Pyroxylin on the surface to which it has been applied; which film, if the flexible collodion be used, does not contract on drying or readily crack, making it an excellent protective application. STYPTIC COLLODION is a solution of Tannin, and is an excellent hemostatic. CANTHARIDAL COLLODION is a convenient blistering agent, suitable for cases where the patient is inclined to remove a blister if applied in the ordinary way.

THERAPEUTICS.

ABSORBENT COTTON is a valuable agent in surgical practice, being employed as an application in burns and scalds, erysipelas, articular rheumatism, etc., to exclude the atmosphere, allay pain, and when covered with oiled-silk or rubber cloth to keep up local perspiration. It may be carbolated, borated or salicylated by soaking in the respective solutions, and then used as an antiseptic dressing for wounds, ulcers, etc. It is employed by the pharmacist in funnels to filter oils, and for the preparation of the official waters.

COTTON-ROOT BARK is much employed by the negroes of the southern states in decoction as a supposed abortifacient, oxytocic and emmenagogue. It is used in the south for intensifying uterine action in normal labor, in dysmenorrhœa and amenorrhœa. A decoction of ℥iv in a quart of water boiled to a pint is the favorite preparation, administered in wineglassful doses.

COLLODION is used as a protective covering for superficial burns, ulcers and wounds, slight cuts, cracked nipples, anal fissures, and erysipelas. For these affections the flexible collodion should be used, but where it i desirable to produce pressure on the part the ordinary form is best, as i contracts in drying with considerable force. This property makes i highly useful in drawing the edges of wounds together, bringing pressure on buboes, incipient boils, carbuncles, etc.

STYPTIC COLLODION has many uses as a hemostatic and protective which will suggest themselves, and the Cantharidal form is a convenient epispastic for uneven surfaces, the therapeutics of which are detailed unde CANTHARIS. (See *ante*, page 152.)

GRANATUM, Pomegranate,—is the bark of the root of *Punica Granatum*, a small tree of the nat. ord. Granataceæ, cultivated in subtropical countries. It occurs in thin quills of yellowish-gray color, warty or ridged on the external surface, inodorous, of astringent and slightly bitter taste. It contains Tannic and Punico-tannic Acids, Mannite and an active liquid alkaloid *Pelletierine*, $C_8H_{13}NO$, which is soluble in water, alcohol, ether, chloroform, etc., and has strong basic properties. There are no official preparations.

Unofficial Preparations.

Extractum Granati Fluidum,—Dose, ʒss–jss.
Decoctum Granati,—ʒxvij of bark from the fresh root in ℥xvij of boiling water.

boiled down to ℥xij and strained. Dose, ℥iv–vj every hour, preceded and followed in a few hours by a brisk cathartic. The decoction of the Br. Phar. is of 1 to 8 strength and is given in doses of ℥ij–iv.

Pelletierinæ Tannas, Tannate of Pelletierine,—Dose, gr. v–xx, taken fasting and followed in 15 minutes by a sharp purgative.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Granatum and its alkaloid are tæniafuge, and very efficiently so, rarely failing to bring away the whole worm. The decoction is usually employed, but lately Pelletierine has been coming into fashion, a proprietary form being sold as "Tanret's Pelletierine" in bottles containing one adult dose at three dollars each. The decoction, in full doses, causes nausea and vomiting, flatulence, purging, and sometimes cramps in the legs, giddiness, dimness of vision, general numbness of the limbs and increase of the quantity of urine.

For the expulsion of tape-worm a mixed treatment by Pomegranate-root bark, Pumpkin seeds and Oleo-resin of Male-fern is preferred by many practitioners. The following formula has proved very efficient. ℞. Granati ℥ij, Aquæ Ojss, boiled to ℥vij; Pepinis ℥j, deprived of outer coats and beaten to a paste with finely-powdered sugar; Oleoresinæ Aspidii, gr. xxx, made into emulsion with Acacia and the above decoction of Granatum, then added to the paste of Pepo, and flavored with Syrups up to ℥ix, one-third of this to be taken in the morning after a light diet and a laxative on the previous day. If not successful the second and third portions may be taken at intervals of 3 hours. The worm should be passed sitting in a tepid sitz-bath to prevent the expelled portion tearing off the head by its weight.

GRINDELIA,—the leaves and flowering tops of *Grindelia robusta*, an herbaceous Californian plant, of the nat. ord. Compositæ, having a branched stem, lower leaves spatulate and tapering at the base, upper leaves oblong, pointed and have broad bases, flowers yellow, odor balsamic, taste pungently aromatic and bitter. It contains a resin, a volatile oil, and an alkaloid with basic properties.

Preparation.

Extractum Grindeliæ Fluidum,—Dose, ♏x–ʒj.

PHYSIOLOGICAL ACTION.

Grindelia is antispasmodic and a motor-depressant, inducing paralysis in small animals beginning in the hind extremities. It slightly slows the heart and respiration, and produces mydriasis and hypnotic effects if given in sufficient quantity, with reduced cutaneous sensibility and sluggish reflexes. It has a pungent taste, creates a sense of warmth in the stomach, and in small doses promotes appetite and digestion. It is eliminated by the pulmonary mucous membrane and the kidneys, and markedly diuretic.

THERAPEUTICS.

Grindelia has been used chiefly in spasmodic asthma, bronchitis an whooping-cough, which it greatly relieves. It is a useful remedy in spa modic coughs, dyspnœa of various pulmonary and cardiac affection hay-fever, and chronic cystitis. Locally it is highly efficient as a sedati lotion (1 part of the fluid extract to 10 of water) in poisoning by Rh toxicodendron, and in skin diseases attended with itching and burni sensations.

GUAIACUM, Lignum Vitæ,—is official in two forms, GUAIA LIGNUM, the heart-wood, and GUAIACI RESINA, Guaiac, the resin of t wood of *Guaiacum officinale*, a large West Indian tree of the nat. or Zygophyllaceæ. The Resin is the important constituent, and itself co sists of three resins, namely,—*Guaiaconic Acid*, $C_{19}H_{20}O_5$, 70 per cen *Guaiac Acid*, $C_6H_8O_3$, resembling Benzoic Acid, and *Guaiarec Ac* $C_{20}H_{26}O_4$; also an indifferent resin. The wood also contains a yell coloring matter, gum, etc.

GUAIACI LIGNUM, Guaiacum Wood,—generally used in the form raspings of greenish-brown color containing whitish particles, of resin odor, taste slightly acrid. Is a constituent of Decoctum Sarsaparil Compositum.

GUAIACI RESINA, Guaiac,—occurs in large masses of a greenish-bro or reddish-brown color, feebly aromatic, taste somewhat acrid, fractu having a glassy lustre, insoluble in water, soluble in alcohol, eth chloroform and alkaline fluids. Dose, gr. v–xxx, in wafer.

Preparations.

Tinctura Guaiaci,—Guaiac 20 per cent. Dose, ♏v–ʒj, in mucilage or syrup, as resin is precipitated by water.

Tinctura Guaiaci Ammoniata,—Guaiac 20, Aromatic Spirit of Ammonia 80 pa Dose, ♏v–ʒss.

PHYSIOLOGICAL ACTION.

Guaiac is diaphoretic, expectorant and alterative. Its taste is acrid a very disagreeable. Internally it is a local stimulant, producing salivati an acrid sensation in the throat, warmth in the epigastrium, increase the gastric and intestinal secretions and the flow of bile, and reflex stin lation of the heart. Its continued use causes gastric catarrh, and in la doses it is a gastro-intestinal irritant, causing vomiting, purging a severe congestive headache. Though a colloidal body it enters the blo stimulates the liver and other excretory glands and the production bronchial mucus, and causes increased circulation and diaphore Sometimes it fails to act on the skin and then is markedly diuretic.

Incompatibles.

Mineral Acids and Spirit of Nitrous Ether are chemically incompatible with Guaiac preparations.

THERAPEUTICS.

Guaiacum was first used as an antisyphilitic, being used in decoction and in large quantity, with a spare diet and external warmth. It acquired a great reputation in this disease during the 16th century, but it is now abandoned for this purpose except as an ingredient of the Compound Decoction of Sarsaparilla. It is a very efficient remedy in tonsillitis, given in ʒss doses of the tincture in emulsion with mucilage or yolk of egg, to abate the inflammation and abort the disease. It has considerable reputation in neuralgic dysmenorrhœa, amenorrhœa, chronic rheumatism, gout, lumbago and sciatica. The ammoniated tincture in water makes a cleanly and not very disagreeable gargle.

GUARANA,—is a dried paste prepared from the crushed or ground seeds of *Paullinia sorbilis*, a climbing plant of the nat. ord. Sapindaceæ, growing in Brazil. It occurs in brown cakes or sticks, having an odor of chocolate and a bitter, astringent taste, partly soluble in water and in alcohol. It contains 25 per cent. of tannic acid, gum, albumen, starch, and a greenish fixed oil, also an alkaloid *Guaranine* (5 per cent.), which is identical with *Caffeine*. The specimens of Guarana in the market are very untrustworthy, unequal in quality and expensive, it being a secret mixture prepared in Brazil. Hence it has been omitted from the list of Squibb's preparations, and a fluid extract of green coffee substituted in its place.

Preparation.

Extractum Guaranæ Fluidum,—Dose, ♏x–ʒij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Guarana has similar actions to those of Coffee, the active principles of both plants being identical, both chemically and physiologically. It is chiefly employed in the treatment of nervous sick-headache (migraine) administered in half-drachm doses of the fluid extract when the attack is developing. It has been used in the diarrhœa of phthisis, convalescence from acute diseases, and generally in conditions requiring tonic treatment.

GURJUN BALSAM, Wood Oil, Balsamum Dipterocarpi (Unofficial),—is an oleoresin obtained from incisions in various trees of the genus Dipterocarpus, growing in India. It is thick, opaque and grayish-brown by reflected light, soluble in chloroform and partly so in alcohol, ether and volatile oils, odor balsamic, taste bitter. It contains from 40 to 70 per cent. of a Volatile Oil, a Resin and *Gurjunic Acid.* Dose, ♏x–ʒij, in emulsion, or in capsules.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The properties of this balsam are similar to those of Copaiba, but it is less disagreeable and less apt to upset the stomach, also less actively diuretic. It has been used with good success in leprosy, given internally in full doses and used locally at the same time. Mixed with 4 parts of Lime-water it is well applied in chronic eczema, lupus and psoriasis.

GUTTA-PERCHA,—is the concrete exudation of *Isonandra Gutta,* a large tree of the nat. ord. Sapotaceæ, growing in the Malay peninsula and adjoining islands. Occurs in tough but somewhat flexible pieces, o grayish or yellowish color, plastic above 140° F., soft at 212° F., insoluble in water or alcohol, soluble in chloroform, oil of turpentine, carbo bisulphide, benzin and benzol. It contains a hydrocarbon *Gutta,* $C_{10}H_{1}$ (80 per cent.), two Resins named *Fluavil* and *Albáu,* also a volatile oil salts, fat and coloring matter.

Preparations.

Liquor Gutta-Perchæ,—a solution of Gutta-Percha 9, Carbonate of Lead 10, in Chloroformum Venale 91 parts. Used as a protective application to eruptions and sligh wounds, the evaporation of the menstruum leaving behind a thin adhesive and non-irritating pellicle.

Traumaticine (Unofficial),—is the name given to a 10 per cent. solution of Gutta-perch in Chloroform, which forms on drying a permanent, unirritating, adhesive, flexible an non-contractile skin for the treatment of skin affections and slight wounds. It forms a excellent basis for the application of Chrysarobin to psoriasis.

USES.

Gutta-Percha has neither physiological action nor therapeutics, bein used for its physical qualities alone. In surgical practice it has severa applications, making a good material for splints, as it can be softened i hot water and adapted to any surface while pliable. From it are manufactured pessaries, specula, stethoscopes and other instruments. Th solution may be used as a protective covering for excoriations and sligh wounds, to prevent pitting in small-pox, and to paint over the line o suture after post-mortem examinations.

HÆMATOXYLON, Log-wood,—is the heart-wood of *Hæmatoxylon campechianum,* a tree of the nat. ord. Leguminosæ, native o tropical America, but naturalized in the West Indies. It occurs in chip or powder of a dark brown-red color, often with a greenish lustre, o feeble and agreeable odor, taste sweet and astringent, and colors the saliv a dark pink when chewed. It contains tannic acid, and a sweet, crystal line coloring principle named *Hæmatoxylin*, $C_{16}H_{14}O_6$, which is colorless when pure, but turns red on exposure to light.

Preparations.

Extractum Hæmatoxyli,—Dose, gr. v–xx.
Decoctum Hæmatoxyli (Unofficial),—strength 1 in 17. Dose, ℥j–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Logwood is mildly astringent, its properties depending on the tannin contained in it. As it is devoid of irritating qualities it is well adapted to the diarrhœas and hemorrhages of young children. It does not produce constipation nor disorder the bowels, but colors the urine and stools blood-red, and has caused phlebitis. It has been used as an hemostatic in bleeding of the lungs, and hemorrhages from the uterus and intestines, and as an astringent in leucorrhœa.

HAMAMELIS, Witch-hazel,—the leaves, collected in autumn, of *Hamamelis virginica*, a shrub of the nat. ord. Hamamelaceæ, growing in the United States, having yellow flowers and oval-shaped leaves about 4 inches long, which are inodorous, but of a bitter and astringent taste. They contain about 8 per cent. of tannic acid, a bitter principle and probably some volatile matters, but the chemistry of the plant has not been fully studied.

Preparations.

Extrectum Hamamelidis Fluidum,—Dose, ♏j–℥j, is the only official preparation, and is prepared from the leaves.

Hamamelin (Unofficial),—is an uncertain extract of very indefinite composition. Dose, gr. j–ij.

Distilled Extracts, so-called, but really Waters distilled from the bark, are sold by various manufacturers, and are said by the vendors to contain the volatile principles of the plant. *Pond's Extract* is such a preparation, said to be made by distilling the bark with a very dilute alcohol, and is a proprietary medicine of uncertain composition.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

No trustworthy experimentation has yet been made with this drug. It is tonic, astringent, styptic and sedative, owing most of its properties to its tannin, but appears to possess some special influence over the venous circulation similar to that of Aconite on the arterial system. In full doses it may produce severe throbbing pain in the head. It is used both internally and locally with great benefit in hemorrhoids, particularly those of the bleeding variety, varicose veins and ulcers, varicocele, venous congestions and threatening local inflammations. It is highly recommended in hemorrhages from the nose, stomach, lungs, rectum and kidneys, threatened abortion, and externally for sprains and bruises, foul ulcers, the pruritus of eczema, leucorrhœa and gonorrhœa. An Ointment of Witch-hazel is found in the shops, and suppositories may be prepared extemporaneously by evaporating the fluid extract and incorporating residue with cocoa-butter.

HEDEOMA, Pennyroyal,—the leaves and tops of *Hedeoma* *gioides*, a plant of the nat. ord. Labiatæ, common to all parts of the U having a four-sided, hairy stem, pale blue flowers, leaves ½ inch l glandular on the under surface, odor strong and mint-like, taste pung Its only important constituent is the Volatile Oil, which is official.

Preparations.

Oleum Hedeomæ, Oil of Pennyroyal,—is the volatile oil, readily soluble in al Dose, ♏ij–x.

Spiritus Hedeomæ (Unofficial),—contains 1 part of the oil in 9 of alcohol. Use ternally or as spray.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Hedeoma is a stimulant aromatic, also somewhat carminative emmenagogue. Its odor is extremely repulsive to insects, especially and mosquitoes. In warm infusion it is a popular remedy for amenor and flatulent colic. It may be used as a corrective with other medic and the spirit is well employed on the hands and face to keep away quitoes. The writer has known death by narcosis to result from an dose of the oil taken to produce an abortion.

HELLEBORUS, Hellebore (Unofficial),—the rhizome and lets of *Helleborus niger* (Black Hellebore) and *Helleborus viridis* (G Hellebore), plants of the nat. ord. Ranunculaceæ, natives of Europe third variety, *Helleborus occidentalis*, growing in Greece, is probably true Hellebore of the ancients. The rhizome is 1 to 3 inches knotty, with transverse rings, of rancid odor when freshly bruised, bitter, acrid taste. Its most important constituents are two glucos *Helleborin* and *Helleboreïn*, both crystalline and very poisonous.

Preparations.

Extractum Hellebori Nigri (Unofficial),—Dose, gr. j–x, cautiously.

Extractum Hellebori Nigri Fluidum (Unofficial),—Dose, ♏ij–xv.

Helleborin, $C_{36}H_{42}O_6$ (Unofficial),—crystalline, insoluble in water, soluble in a and chloroform.

Helleboreïn, $C_{26}H_{44}O_{15}$ (Unofficial),—crystalline, very soluble in water, slightly alcohol, insoluble in ether. Dose, gr. $\frac{1}{16}$–$\frac{1}{10}$.

PHYSIOLOGICAL ACTION.

BLACK HELLEBORE is a drastic, hydragogue cathartic, and an em agogue. In overdoses it is a violent gastro-intestinal irritant, prod vomiting, hypercatharsis, vertigo, cramps and convulsions, which ma sult fatally. Locally applied, the fresh root is violently irritant to skin, producing inflammation and vesication.

HELLEBORIN is an active poison, acting on the tongue like Aconite, and on the nervous system as a narcotic, producing in animals paresis of motion and sensation, cerebral and spinal congestion, dilated pupils and death. It is less irritant than Helleboreïn to the mucous membranes.

HELLEBOREÏN is less actively toxic to animals, but is very irritant, producing conjunctivitis, sneezing, salivation, nausea, vomiting and purging. It affects the heart like Digitalis, small doses frequently repeated slowing its action, but large ones quicken it and then suddenly paralyze it through the pneumogastric nerve. Respiration is at first accelerated, then slowed and rendered laborious. Diuresis is a constant result, the kidneys and uterus are congested, gradual paralysis and severe convulsions follow, and death occurs by paralysis of the heart.

THERAPEUTICS.

BLACK HELLEBORE is an old remedy, having been highly esteemed by the early physicians in insanity, dropsies, worms, cutaneous affections and amenorrhœa. It has at present gone out of fashion, but might be usefully employed in dropsies and as a revulsant in acute cerebral affections. Recently *Helleboreïn* has come into notice as a substitute for Digitalis in cardiac affections, as being of less bulk and more definite composition. Its action on the heart is obtained by doses much smaller than those necessary for its irritant effects on the gastro-intestinal canal. Its solubility in water and the freedom with which it can be used hypodermically are important qualities to recommend it.

HOANG-NAN, or Hwang-Nao,—is the bark of *Strychnos Gaultheriana*, or Tropical Bind-weed, a creeping vine of the nat. order Loganiaceæ, found in the mountains of Tonquin. It contains the alkaloids *Strychnine* and *Brucine*, thus resembling in composition its congeners Nux-Vomica and Ignatia, but differing from them, as they do from each other, in the proportional quantities in which the alkaloids are contained,—Brucine predominating in this plant, as Strychnine does in the other two.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Like the other members of the Strychnos family, Hoang-Nan is an active tetanizer, its action generally corresponding with that of Nux-Vomica. It was first brought into notice by the missionary fathers stationed in the French colonies in Asia, they having found its employment general among the natives for leprosy and hydrophobia. Along the coast of Tonquin and Cochin-China, and in Pondicherry, Trinidad, Venezuela, etc., it has an established reputation in the two terrible diseases mentioned, also as a remedy for the bites of venomous serpen and other reptiles, scrofulous and syphilitic ulcers, indolent sores, etc It has been used successfully for malarial fevers, in lieu of quinine, and highly spoken of by Father Brosse, as a stimulant to the intellect, withou producing any subsequent depression.

The Dose of the powdered drug is about gr. iij–v;—of the aceto alcoholic Extract, gr. ⅛–½;—and of the concentrated Tincture, ♏j–v.

HUMULUS, Hops,—the strobiles (fruit-cones) of *Humulus Lupulus*, a cultivated creeping plant of the nat. ord. Urticaceæ. They ar ovate, 1 to 1½ inch long, and consist of a hairy, undulating axis and severa membranous, greenish scales, odor aromatic, taste bitter, aromatic an slightly astringent. Its constituents are wax, resins (50 per cent.), tanni (5 per cent.), a liquid volatile alkaloid *Lupuline*, a *Volatile Oil* (2 pe cent.) which consists in part of *Valerol* and *Trimethylamine*, and a crystalline, bitter principle *Lupulinic Acid* (11 per cent.). These, excep tannin, are more abundant in the glandular powder of the strobile which is named *Lupulin*.

Preparations.

Tinctura Humuli,—strength 20 per cent. Dose, ʒj–ij.

Infusum Humuli (Unofficial),—℥ss to the pint. Dose, ℥j–iv.

Lupulinum, Lupulin,—is the glandular powder separated from the strobiles, of brig brownish-yellow color, aromatic and bitter taste. The Volatile Oil resides in the Lupul grains, and contains *Valerol*, which is changed into *Valerianic Acid* by long exposu giving a disagreeable odor to old hops. Dose, gr. v–xv.

Extractum Lupulini Fluidum,—alcoholic. Dose, ♏x–ʒj.

Oleoresina Lupulini,—an ethereal extract. Dose, gr. ij–v.

Tinctura Lupulini (Unofficial),—strength ⅛. Dose, ʒss–ij.

PHYSIOLOGICAL ACTION.

HUMULUS is a bitter tonic, a feeble hypnotic, and somewhat diaphoretic astringent and anaphrodisiac. It increases the cardiac action and th cutaneous circulation. After slight cerebral excitement it produces caln and a soporific disposition, especially if the solution administered b strongly alcoholic. The stomachic and tonic effects are due to the bitte principle, lupulinic acid, and are found in bitter ale. The primar stimulant and secondary sedative effects are due to the volatile oil an are also possessed by ales and beer.

Incompatibles.

Mineral acids and metallic salts are chemically incompatible with preparations of Hop

THERAPEUTICS.

Hops are used as a tonic and calmative in delirium tremens, in whic a combination of the tincture with Tr. Capsici is very efficient and is a excellent substitute for alcohol. In dyspepsia of atonic form HUMULU is an excellent stomachic tonic, and in nervous irritability the fluid extract of Lupulin may be used as a calmative and hypnotic, or the hop-pillow, which certainly exercises considerable influence, imaginary or otherwise. A poultice of hops is a favorite domestic application in inflammations and pain. *Lupulin* has been used with benefit in irritable bladder, alcoholism, and as an anaphrodisiac in the treatment of chordee, gonorrhœa, spermatorrhœa and other affections of the genito-urinary organs.

HYDRANGEA (Unofficial),—is the root of *Hydrangea arborescens*, a plant of the nat. ord. Saxifragaceæ, growing in the southeastern U. S. It is a white, tough root, having a thin brown bark which peels off in spots, inodorous, taste insipid, afterwards pungent. It contains gum, albumen, starch, resin, and a ferrous salt, with other salts. Dose, ʒss–ʒij, best in fluid extract. A decoction of the root may be used in doses of ℥j–ij.

Hydrangea has been long used by the Cherokee Indians in calculous affections, and reports of cases by competent observers show that it is of unquestionable utility in this class of disorders, promoting the removal of gravel from the bladder, and relieving pain during the passage of renal concretions through the ureters. Large doses produce vertigo, oppression of the chest, and considerable cerebral disturbance.

HYDRARGYRUM, Mercury, Quicksilver, Hg,—is a shining, silver-white metal, fluid and slowly volatile at ordinary temperatures, solidifies at —40° F., boils at 662° F., volatilizes without residue, insoluble in ordinary solvents, wholly soluble in nitric acid, of sp. gr. 13.5, odorless and tasteless.

Preparations of Mercury.

Hydrargyrum cum Creta, Mercury with Chalk, Gray Powder,—has of Mercury 38, Sugar of Milk 12, Prepared Chalk 50, Ether and Alcohol, triturated together to a uniform gray powder. Dose, gr. ss–x.

Massa Hydrargyri, Blue Mass, Blue Pill,—contains of Mercury 33 parts, Liquorice 5, Althæa 25, Glycerin 3, Honey of Rose 34. Each grain contains gr. ⅓ of Mercury. Dose, gr. ss–xx.

Unguentum Hydrargyri, Mercurial Ointment, Blue Ointment,—Mercury 450, Lard 225, Suet 225, Compound Tincture of Benzoin 40, Old Mercurial Ointment 100 parts, triturated until globules of Mercury cease to be visible under a magnifying power of 10 diameters.

Emplastrum Hydrargyri, Mercurial Plaster,—Mercury 30, Olive Oil 10, Resin 10, Lead Plaster 50 parts.

Emplastrum Ammoniaci cum Hydrargyro,—see *ante*, page 93.

Chlorides and their Preparations.

Hydrargyri Chloridum Corrosivum, Corrosive Chloride of Mercury, Bichloride, Mercuric Chloride, Corrosive Sublimate, $HgCl_2$,—heavy colorless crystals, of acrid, metallic taste, acid reaction, soluble in 16 of water and 3 of alcohol at 59° F., in 2 of boiling water, 1 of boiling alcohol and in 4 of ether. Dose, gr. $\frac{1}{80}$–$\frac{1}{16}$.

Hydrargyri Chloridum Mite, Mild Chloride of Mercury, Subchloride, Mercuro Chloride, Calomel, Hg_2Cl_2,—a heavy, white, impalpable powder, insoluble in wate alcohol or ether, odorless and tasteless. Is an ingredient of Pil. Antimonii Co. and Pi Catharticæ Co. Dose, gr. $\frac{1}{20}$–x.

Hydrargyrum Ammoniatum, Ammoniated Mercury, White Precipitate, Mercu ammonium Chloride, NH_2HgCl,—is a white, insoluble powder, odorless and tasteles Only used externally.

Unguentum Hydrargyri Ammoniati, White Precipitate Ointment,—Ammoniate Mercury 10, Benzoinated Lard 90 parts.

Oxides and their Preparations.

Hydrargyri Oxidum Flavum, Yellow Oxide of Mercury, Precipitated Oxide, HgO,—an orange-yellow, heavy, impalpable powder, odorless and tasteless, insoluble in water alcohol, but wholly soluble in nitric or hydrochloric acid. Used to prepare:

Unguentum Hydrargyri Oxidi Flavi,—strength 1 to 9 of Ointment.

Oleatum Hydrargyri,—Yellow Oxide 10, Oleic Acid 90.

Hydrargyri Oxidum Rubrum, Red Oxide of Mercury, HgO,—a heavy, orange-re crystalline powder, having the same properties as the yellow oxide, from which it differ only in being crystalline and not in such a minute state of subdivision. Dose, gr. $\frac{1}{50}$–$\frac{1}{10}$

Unguentum Hydrargyri Oxidi Rubri,—strength 1 to 9 of Ointment.

Iodides and their Preparations.

Hydrargyri Iodidum Rubrum, Red Iodide of Mercury, Biniodide, Mercuric Iodide HgI_2,—a scarlet-red, crystalline powder, almost insoluble in water, soluble in 130 o alcohol, in solution of iodide of potassium or of mercuric chloride. Prepared by doubl decomposition between Iodide of Potassium 11 parts and Mercuric Chloride 9 parts Dose, gr. $\frac{1}{50}$–$\frac{1}{10}$.

Liquor Arsenii et Hydrargyri Iodidi, Solution of Iodide of Arsenic and Mercury Donovan's Solution,—see *ante*, page 117.

Hydrargyri Iodidum Viride, Green Iodide of Mercury, Protiodide, Mercurous Iodide, Hg_2I_2,—a dull green or greenish-yellow powder, insoluble in alcohol or ether and almost so in water. Dose, gr. $\frac{1}{10}$–$\frac{1}{5}$.

Acid Combinations and their Preparations.

Liquor Hydrargyri Nitratis, Solution of Mercuric Nitrate,—a liquid containing in solution about 50 per cent. of Mercuric Nitrate, $Hg(NO_3)_2$, with some free Nitric Acid. Prepared from the Red Oxide of Mercury 40, by Nitric Acid 45, and Distilled Water 15 parts. Used as a caustic.

Unguentum Hydrargyri Nitratis, Citrine Ointment,—prepared by dissolving Mercury 7, in Nitric Acid 17, and adding Lard Oil 76.

Hydrargyri Subsulphas Flavus, Yellow Subsulphate of Mercury, Basic Mercuri Sulphate, Turpeth Mineral, $Hg(HgO)_2SO_4$,—a heavy, lemon-yellow powder, insoluble i water or alcohol, soluble in nitric acid and in 20 parts of hydrochloric acid without residue Dose, as an emetic, gr. ij–v.

Sulphide and Cyanide.

Hydrargyri Sulphidum Rubrum, Red Mercuric Sulphide, Cinnabar, HgS,—Red crystalline masses, or a fine, scarlet powder, insoluble in ordinary solvents, but soluble i nitro-hydrochloric acid with separation of sulphur. Used only for mercurial fumigation.

Hydrargyri Cyanidum, Mercuric Cyanide, $Hg(CN)_2$,—colorless, prismatic crystals, o bitter, metallic taste, soluble in 12.8 of water and in 15 of alcohol at 59° F. Dose, gr $\frac{1}{100}$–$\frac{1}{10}$.

Triturations.

These may be prepared according to the general formula under "Triturationes" in th Pharmacopœia, 10 parts of the substance to 90 of Sugar of Milk. Mercury itself or an of its salts may be so treated with excellent results, the particles being much finer an therefore more easily absorbed than if rubbed up with any other agent.

Unofficial Preparations.

Lotio Hydrargyri Flava, Yellow Wash,—prepared by adding Corrosive Sublimate gr. xviij to Lime-water ℥ x, producing the yellow oxide, a favorite application for syphilitic sores.

Lotio Hydrargyri Nigra, Black Wash,—prepared by adding Calomel gr. xxx, to Lime-water ℥ x, producing the black oxide, and used as an application to syphilitic sores.

Unguentum Hydrargyri Nitratis Rubrum,—Red Ointment of Mercuric Nitrate, Brown Citrine Ointment,—differs from the official ointment only in being made with Cod-liver Oil, which gives it a brown color, and a more agreeable odor.

PHYSIOLOGICAL ACTION.

Mercury is tonic, purgative, alterative, antiphlogistic and sorbefacient, but not directly cholagogue. Some of its salts are corrosive poisons, others are local caustics, all produce by long-continued administration the peculiar cachexia termed Hydrargyrism. The metal itself is inert, but by combination with the acids and fluids of the body becomes active, and is easily absorbed in any form, passing into the blood from the skin, mucous membranes, lungs and stomach, in each case probably as an Oxyalbuminate of Mercury. Entering the stomach in any form it is first converted into a double Chloride of Sodium and Mercury, then uniting with the albuminous juices to form a complex molecule of Mercury, Sodium, Chlorine and Albumen, which being soluble in an excess of sodium chloride or albumen, exists in solution, and is easily absorbed, being decomposed in the blood and changed to the oxyalbuminate. Entering the intestines a purgative action is soon set up, of more or less severity according to the preparation used, a small portion only is absorbed, the rest being converted into a Sulphide and excreted with the fæces, unless combined with opium which delays its progress through the intestines and permits of its greater absorption. In the blood its effects are tonic in small doses, but in quantity it indirectly produces impoverishment thereof, impairs the ozonizing function, diminishes the red corpuscles, and consequently disorders nutrition and deranges digestion. From the blood it enters the tissues, where it remains for an indefinite period, exerting a peculiar influence, termed "alterative" on all processes characterized by growth of young cells, but not producing any definite anatomical changes either in the viscera or the nervous tissue, though in the latter a low form of inflammation arises, resulting in loss of coördination-power. It stimulates most of the glands of the body, especially the salivary glands and the pancreas, to the production of pathological secretions, and is excreted with comparative slowness by all the secretory organs, being found in the saliva, sweat, milk, urine and bile. It tends to accumulate in the liver, while stimulating its cells, and is not cholagogue, though stimulating the flow of bile already secreted by reflex action on the bile-ducts due to its direct purgation of the duodenum. Its excretion is hastened and completed by the use of the iodide of potassium.

In small doses administered for a short time the mercurial preparations are blood-tonics, improving its general condition, increasing the numb of red corpuscles and the body weight. They soon begin to promo waste by stimulating the lymphatic system, and if the small doses are lo continued or the quantity is increased, symptoms of mercurial poisoni being to manifest themselves.

The first symptoms of HYDRARGYRISM are fetid breath, swollen a spongy gums having a bluish line along their margins, stomatitis, sore a loosened teeth, inflamed and tender salivary glands pouring out a pecul thin saliva of foul odor in large quantity, and a metallic taste in the mout Anorexia, diarrhœa and fever follow, also ulceration and in some cases ev gangrene of the lips and tongue. If the use of the drug be continu nutrition will be greatly impaired through the extreme promotion of r rograde metamorphosis, and various nervous disturbances will follow, t effects being emaciation, pallor, œdema, ulcerated skin, erythemato vesicular or pustular eruptions, headache, insomnia, neuralgia, trem through paresis of the muscles of the head and extremities, epilepsy, co and convulsions. In pregnant women abortion will occur by reason the impoverishment of the blood. Indeed, as Dr. Ringer said in t earlier editions of his *Handbook of Therapeutics*, the phenomena produc by mercury are singularly similar to those which will result from syphil and the serious symptoms known as secondary and tertiary syphilis can produced both by syphilis and by mercury. The drug is probably a tr vital antidote against the syphilitic virus, and is capable of bringing abo a radical cure of the disease, if introduced into the system in considera quantity and its use protracted over a very long time, the action of t drug in all cases being kept short of ptyalism or any pronounced physi logical effects.

Salivation is most readily produced by Blue Mass, next by Calome and less easily by Gray Powder. Individuals differ greatly in their su ceptibility to the action of mercury, some persons having been affecte after a single moderate dose. Children are not easily salivated. Inhala tion of mercurical vapors is apt to affect the nervous system most, it internal administration and that by inunction are more likely to produc salivation.

The observations on the antiphlogistic and sorbefacient actions c Mercury are clinical rather than physiological, but it is generally agree that exhibited in inflammation mercurials antagonize the increase of th hæmic fibrin which is so constant an effect of the inflammatory process and that in chronic diseases attended by the formation of semi-organize deposits, a mild mercurical course will almost insensibly remove the new formed material.

A not uncommon result of full doses of Blue Pill is an acute coryza c very severe character, which the writer has frequently observed to follo on neglect of the old-fashioned precaution to "work off" the mercurial by a saline cathartic. The symptoms produced are those of a severe attack of influenza, epistaxis, conjunctivitis and obstinate muco-purulent discharge from the nasal passages being especially marked. Similar effects have been observed during physiological experiments with mercury on animals by Overbeck and Bennett.

NOTES ON THE ACTION OF THE PREPARATIONS.

METALLIC MERCURY is not used internally except in the finely-divided form obtained in Blue Pill and Gray Powder, which are capable of producing all the effects above described. Mercurial Ointment is the preparation generally used for inunction, a piece the size of a small nut being daily rubbed into the soft skin at the flexures of joints. The Oleate painted over the surface is a more cleanly method of making the same application. Both these preparations are efficient parasiticides.

The BICHLORIDE is the most actively toxic of the mercurial salts. It is probably the most active zymoticide and parasiticide, a solution of 1 part in 2000 being efficiently antiseptic for use as injections or dressings, and one of 1 to 250 being the usual strength for use against epizoa and parasitic skin affections. It is a very active gastro-intestinal irritant, in toxic dose producing nausea, retching and vomiting, a metallic taste, constriction of the fauces, burning pain in the stomach, suppression of urine, bloody diarrhœa, collapse and death often preceded by convulsions. It affects specifically the lower bowel [Calomel preferring the upper intestine], and produces inflammation and ulceration of the rectum. It is, however, one of the most manageable and efficient of the mercurials when used in proper doses.

The SUBCHLORIDE (Calomel) is very insoluble and unirritating, tasteless, laxative in grain-doses, decomposed by the alkaline contents of the intestines, the Oxide of Mercury being formed, and acts especially on the excrementitious glandular appendages of the upper intestine, stimulating the liver by indirect reflex action as a duodenal purgative. In the presence of alkaline chlorides it is converted into the Bichloride, but not in sufficient quantity to render it dangerous in the gastro-intestinal canal. Externally applied it is very sedative to the mucous membranes and the skin. Calomel is a very efficient diuretic.

AMMONIATED MERCURY is an Ammonio-Chloride, and a useful stimulant and parasiticide when used locally in the form of ointment.

The IODIDES are actively poisonous, the Red being much the most irritant, in overdoses producing symptoms and results very similar to those caused by the Bichloride. The CYANIDE is also actively poisonous. The YELLOW SUBSULPHATE is a prompt and usually harmless emetic, but has occasionally produced fatal results by local irritant action. The

Oxides are irritant, the Red being the most so, and are rarely used internally. The Acid Nitrate is a good escharotic, the pain caused by it being transient though severe, and its caustic action being comparatively superficial. The Ointment of the Nitrate (Citrine Ointment) is more irritant than that of the Ammoniated Mercury, and generally needs dilution. All these preparations may produce the constitutional effects of mercury, and their administration should be carefully watched for the first symptoms of mercurialization.

Antidotes and Incompatibles.

Albumen in some form, the white of one egg to gr. iv of the bichloride, forms the albuminate, which must be at once evacuated by emesis or the stomach-pump, as it is soluble in excess of albumen or in the alkaline contents of the intestines.

The Chlorides are incompatible with very many agents, and the Bichloride should be administered in distilled water or pill by itself, being easily decomposed. Calomel is decomposed by alkaline Iodides or Bromides. The combination of Calomel with Hydrochloric Acid or Chlorides is apt to produce Corrosive Sublimate. In the "mixed treatment" of syphilis, a mercurial is combined in solution with Iodide of Potassium, and the Red Iodide is the preparation usually selected, as the Bichloride is decomposed by the Potassic Iodide, Red Iodide of Mercury being precipitated. All trouble regarding incompatibility can be avoided by using sugar of milk triturations according to the general official formula. In this form, says Piffard, "a larger proportion of the drug is utilized for specific purposes, while but a small amount remains to give rise to local irritation."

THERAPEUTICS.

Mercury is undoubtedly a specific in syphilis, but is not applicable to the tertiary form of that disease. It is best administered in very small doses carefully watched and stopped just short of ptyalism, but renewed and so continued for a long time. Fumigation by Calomel volatilized by heat, or inunction by the Oleate or by Mercurial Ointment may be used when the stomach will not bear any mercurial. The hypodermic method is also used, employing a solution of the Bichloride gr. j to ℥j each of glycerin and distilled water, of which the dose is ♏x once daily; or the Albuminate in solution with Sodium Chloride. The Green Iodide in doses of gr. $\frac{1}{10}$ to $\frac{1}{6}$ thrice daily with Opium is the best preparation for internal use. Accuracy of diagnosis is an absolutely necessary preliminary to the administration of Mercury, for where there is no syphilitic virus to be antagonized the constitutional effects of mercurials will become manifest sooner and may do great harm in feeble subjects, besides the risk of mistaking them for the results of the disease supposed to be present.

Tonsillitis, parotitis and other acute glandular inflammations of the throat and neck may often be rapidly cured by Calomel gr. $\frac{1}{20}$ or Gray Powder gr. $\frac{1}{5}$ every two hours. In irritable stomach with obstinate vomiting the same small doses of Calomel every half hour are very efficient. The dysentery of adults with slimy and bloody stools is best treated by small doses (gr. $\frac{1}{100}$) of the Bichloride, and in the diarrhœa and dysentery (ileo-colitis) of infants Gray Powder gr. $\frac{1}{5}$ or Calomel gr. $\frac{1}{20}$ will be found very effective. In gastric ulcer and in the first stage of hepatic cirrhosis, the Bichloride in doses of gr. $\frac{1}{60}$ to $\frac{1}{30}$ thrice daily is a good remedy. Typhoid fever is treated in Germany by daily doses of Calomel, gr. x, for three days as an antipyretic. Diphtheria is by many practitioners considered to be best antagonized by Calomel in large doses, and in this affection the Cyanide has many advocates, given in doses of gr. $\frac{1}{100}$–$\frac{1}{16}$ every hour, a weak solution being at the same time used as a gargle. Asiatic cholera is frequently treated by small, repeated doses of Calomel with Opium from the start. Inflammations of sthenic character in the stage of exudation, especially when affecting serous membranes, are considered by many authorities to be best met by the free use of mercurials, but this treatment is fast going out of favor, excepting in cases of iritis, which, however, is very often of syphilitic causation, and pneumonia, which is frequently treated according to the best American authorities with sedative doses (gr. xv–xx) of Calomel.

In the general condition known as "biliousness," manifested by whitish or clay-colored stools, constipation, nausea, anorexia, coated tongue, slight jaundice, etc., mercurial purgatives have long been a routine remedy, but mild saline purgatives are by many authorities considered equally efficient. As an antiseptic to the gastro-enteric tract in many forms of stomach and intestinal disorders (dyspepsia septica), the administration of minute doses of the Yellow Oxide of Mercury will be found remarkably efficient. It is best used in trituration with sugar of milk, 1 to 1000, and in daily doses of gr. $\frac{1}{60}$–$\frac{1}{50}$. By the use of these small doses failing digestion and nutrition may almost certainly be improved.

In membranous laryngitis or true croup the Subsulphate as an emetic is by many considered to have some specially beneficial influence.

Locally, an ointment of Calomel ʒj to ℥j of Lard is an excellent antipruritic, and ointments of the Chlorides and Iodides are much used in skin diseases, particularly psoriasis, herps, acne, and pityriasis. In parasitic affections a lotion of the Bichloride, gr. ij to ℥j of distilled water, or a 5 per cent. Oleate with $\frac{1}{8}$th part of Ether, are very efficient. The Oleate is a serviceable application to syphilitic indurations, but is not deemed advisable when ulceration exists. In conjunctivitis Calomel may be used as a sedative application, or still better an Ointment of the Yellow Oxide, gr. x to ℥j of Vaseline, triturated to the utmost fineness before mixing. Goitre and enlarged spleen are often speedily reduced by rubbing into the skin covering them the Ointment of the Red Iodide somewhat diluted and applied before a hot fire or in the direct sunlight. The Acid Nitrate Solution is one of the best caustics for destroying chancroid and syphilitic warts and vegetations. Black and Yellow Wash are used as applications to syphilitic erosions and ulcerated indurations.

As an antiseptic injection or application to dressings a solution of the

Bichloride, gr. vijss in a quart of hot water ($\frac{1}{2000}$), is probably the most efficient that can be used, and still weaker solutions ($\frac{1}{5000}$) are sufficiently antiseptic for most purposes.

HYDRASTIS, Golden Seal,—the rhizome and rootlets of *Hydrastis canadensis*, a small plant of the nat. ord. Ranunculaceæ growing in most parts of the U. S. The rhizome is 1½ inch long, rough, bent and branched, externally of a yellowish-gray color, internally a bright reddish-yellow, having numerous thin, brittle rootlets, a slight odor and a bitter taste. It contains an unnamed Resin and 3 alkaloids, *Hydrastine*, $C_{22}H_{23}NO_6$, white and crystalline, soluble in alcohol, ether, etc., *Berberine*, $C_{20}H_{17}NO_4$, yellow crystals soluble in hot water and alcohol, but not in ether (see page 130), and *Xanthopuccine*, also yellow and crystalline. All these alkaloids unite with acids to form salts.

Preparations.

Extractum Hydrastis Fluidum,—Dose, ♏v–xxx.

Tinctura Hydrastis,—strength 20 per cent. Dose, ʒss–ij.

Hydrastin (Unofficial),—an impure extract precipitated by Hydrochloric Acid from the alcoholic solution, chiefly consisting of Muriate of Berberine. Dose, gr. ij–v.

PHYSIOLOGICAL ACTION.

HYDRASTIS is a simple bitter and a stomachic tonic. It promotes appetite and digestion and increases the secretions of the gastro-intestinal tract and the flow of bile, but if long used it will derange digestion and produce constipation. It is possessed of antiperiodic powers, and is a protoplasmic poison, arresting the movements of the white blood-corpuscles. By many observers it is also considered alterative to the mucous membranes, deobstruent to the glandular system, cholagogue, diuretic and antiseptic. The alkaloid HYDRASTINE produces effects on the nervous system somewhat similar to those caused by Quinine, but seems to be devoid of toxic power, large doses only producing a sense of warmth in the epigastric region, and noises of a rushing character in the ears.

Incompatibles.

Tannic Acid, Hydrochloric Acid and the Alkalies are chemically incompatible with preparations of Hydrastis.

THERAPEUTICS.

HYDRASTIS is chiefly used as a stomachic tonic, an antiperiodic, a mild laxative and an antiseptic. Its alkaloid (Hydrastine) and extract (Hydrastin) are ranked high in the treatment of intermittents and chronic malaria, though much less efficient than Quinine. It is an excellent remedy locally and internally in all forms of catarrh, especially that of the stomach, duodenum, gall-ducts, bladder, uterus and vagina. Internally it is efficient in many glandular swellings, in chronic constipation due to a sluggish state of the liver or deficiency of the other intestinal secretions, in chronic dyspepsia, and as a substitute for alcohol in dipsomaniacs when a catarrhal state of the stomach has been induced. In gonorrhœa, gleet, and chronic nasal catarrh it is locally employed with much benefit, also in syphilitic affections of the mouth, throat and nares. As a local alterative and antiseptic application it is highly recommended for unhealthy ulcers and sores, cancerous ulcerations, mercurial and aphthous stomatitis, rectal fissure, fistula and prolapse, internal and external hemorrhoids, cracks, fissures and abrasions of the nipples, erosion and ulceration of the cervix uteri, and in conjunctivitis with muco-purulent discharge. In gonorrhœa a very efficient injection is an infusion of Hydrastis, ʒj of the powdered root to ℥viij of boiling water, or the fluid extract diluted in the proportion of ʒss or ʒj to the pint of water, but it should not be used until the acute stage has subsided.

HYDROCOTYLE, Pennywort (Unofficial),—is the leaf of *Hydrocotyle asiatica*, a small plant of the nat. ord. Umbelliferæ, a native of southern Africa and India. It contains a peculiar, oleaginous substance *Vellarine*, which has a bitter, persistent taste, and is thought to be the active principle. It has long been used in its native countries as an alterative to purify the blood, and has lately been found of great service in eczema, lupus, psoriasis, syphilitic and scrofulous sores, and in leprosy. An ounce of the dried plant or leaves is given daily in infusion. It causes great itching over the whole body, ovarian pain in females, and urinary irritation. In one case in which the drug was being given for lupus of the hand a severe orchitis was set up without any other apparent cause. It certainly exerts a markedly special influence on the genito-urinary tract.

HYOSCYAMUS, Henbane,—the leaves, collected from plants of the second year's growth, of *Hyoscyamus niger*, a biennial plant of the order Solanaceæ, growing in Europe and the northern U. S. The leaves are ovate, often 10 inches long and 4 broad, of grayish-green color, glandular-hairy, midrib prominent, odor heavy and narcotic, taste bitter and acrid. It contains an alkaloid *Hyoscyamine*, $C_{17}H_{23}NO_3$, which is isomeric with Atropine and identical with Daturine and Duboisine, occurring as an oily liquid or in tufted crystals of silky lustre and yellow color, soluble in hot water, alcohol or ether. Another substance, *Hyoscine*, is by some authorities considered a derivative of Hyoscyamine, by others a second alkaloid. It is semi-liquid, isomeric with Atropine, and yields *Tropic Acid* and *Pseudotropine*. Hyoscyamus leaves also contain a fatty Oil and much Potassic Nitrate, while from their destructive distillation an empyreumatic Oil is obtained which is a powerful narcotic.

Preparations.

Abstractum Hyoscyami,—Dose, gr. iij–v.

Extractum Hyoscyami Alcoholicum,—Dose, gr. j, when active.

Extractum Hyoscyami Fluidum,—Dose, ♏v–xx.

Tinctura Hyoscyami,—strength 15 per cent. Dose, ʒj–iv; as a hypnotic ℥ss–j is necessary.

All the preparations of Hyoscyamus are uncertain in strength and in activity, so mu so that the effective dose of the extract (no longer official) ranged from 2 to 250 grains.

Hyoscyaminæ Sulphas,—Sulphate of Hyoscyamine $(C_{17}H_{23}NO_3)_2.H_2SO_4$,—occ in small, yellow scales or crystals, which are deliquescent, of bitter taste, and very solub in water and in alcohol. It varies much in purity of the base and consequently activity. A grain of the commercial article, which was formerly very impure, has bee given with impunity, but gr. $\frac{1}{40}$ of the pure alkaloid has produced violent poisonin Dose, hypodermically, should not exceed gr. $\frac{1}{65}$; by the mouth gr. ¼–j may be given urgent cases.

Hyoscyamine of good quality is difficult to procure and is very expensive, whi Duboisine is easily obtained in any quantity, so that if these alkaloids prove to be physi logically as well as chemically identical as is now claimed, the latter will be used to th exclusion of the former.

Hyoscinæ Hydrobromas, Hydrobromate of Hyoscine (Unofficial),—Merck's is the on reliable preparation on the market. Dose, hypodermically, gr. $\frac{1}{100}$; by the mouth g $\frac{1}{80}$–$\frac{1}{60}$.

PHYSIOLOGICAL ACTION.

HYOSCYAMUS has similar action to that of Belladonna, Duboisia an Stramonium, except that it is the least powerful and irritant of the group, but the most calmative and hypnotic. The delirium produced by it is never furious and is without hyperæmia, but is accompanied by insomnia. It is more stimulant to the vaso-motor system and to the cardiac accelerator apparatus than is Stramonium, but is less active on the pneumogastric. It has decidedly laxative and carminative effects on the intestines and a very marked sedative influence on the urinary passages.

HYOSCYAMINE corresponds in action to the plant and its congeners, being considered by many authorities as almost identical with Atropine, but less powerful. No death has directly resulted from it. Except in very large doses it is more an anodyne or anæsthetic than a narcotic or soporific. It is a mydriatic, excites the cerebral functions and depresses the spinal. Many observers deny that it has any soporific influence.

HYOSCINE is a powerful hypnotic, lowers the pulse-rate and lessens the frequency of the respirations. It especially affects the motor tract of the spinal cord and the cerebral cortex, slightly depresses the heart, but paralyzes respiration. It is free from irritant qualities and may be used hypodermically. Its habitual use brings on muscular paralysis and delirium of violent character. It is coming into use as a hypnotic by alcoholics and nervous subjects, and will probably ere long be responsible for many deaths. As a mydriatic its reputation is doubtful, some observers claiming greater power for it in this respect than that of Atropine, while others say that mydriasis may follow its use but is not always produced by even large doses.

Antagonists and Incompatibles.

These are the same as for Belladonna (see *ante* page 127). Liquor Potassæ though incompatible is frequently prescribed in combination with Hyoscyamus. All the fixed caustic alkalies decompose its alkaloid as also those of the allied plants.

THERAPEUTICS.

Hyoscyamus is a valuable narcotic and is chiefly used as a hypnotic and anodyne when Opium is contraindicated, and for children. It is by far the best agent to use in acute mania with high motor excitement, obstinate insomnia and varied hallucinations. Chronic mania has been more benefited by it than by any other drug, and it is very efficient in insanity characterized by frequent delusions. In delirium tremens and the delirium of fevers it is an excellent hypnotic, and the monomania of hypochondriacs is alleviated and often cured by it. Whooping-cough, nervous coughs, and especially a dry, tickling night-cough, are greatly alleviated by full doses of Hyoscyamus. It is also efficient in colic of various forms, to palliate the trembling of paralysis agitans and mercurial tremor, and to relieve the pains and disordered coördination of locomotor ataxia. In constipation it is a good remedy, the extract being much employed in combination with other purgatives to render them more efficient and less drastic, but the quantity used is generally too small to be of any particular benefit. The tincture is an efficient remedy in irritability of the bladder from any cause.

HYOSCYAMINE may be used for the same purposes as Atropine, but being liable to considerable variation in purity and activity, it is not a popular agent with the profession.

HYOSCINE has been used in neuralgia, whooping-cough, insomnia from cerebral excitement, delirium tremens, asthma and enteralgia, also in ophthalmic practice as a mydriatic. Doses of gr. $\frac{1}{70}$ are given by the stomach, gr. $\frac{1}{100}$ hypodermically.

ICHTHYOCOLLA, Isinglass,—is the swimming-bladder of *Acipenser Huso*, and of other species of *Acipenser* (Sturgeon). It occurs in horny sheets, semi-transparent, iridescent, soluble in 24 parts of boiling water, forming on cooling a transparent jelly. It is the purest form of Gelatin known.

Preparation.

Emplastrum Ichthyocollæ, Court Plaster,—consists of Isinglass 10, Glycerin 1, Alcohol 40, Water and Tincture of Benzoin, spread on taffeta and allowed to dry.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Isinglass is slightly nutritious, but has no advantage over any other form of gelatin. It is used for clarifying liquids, and in solution as a test for tannin. The plaster is a common protective application.

IGNATIA, St. Ignatius' Bean,—is the seed of *Strychnos Ignatii*, a small tree of the nat. ord. Loganiaceæ, native in the Philippine Islands, and also called *Ignatia Amara*. The seed is about an inch long, ovate, irregularly angular, hard and horny, enclosing an irregular cavity containing an oblong embryo, inodorous, taste very bitter. It contains the alkaloids *Strychnine* and *Brucine*, about 1 per cent. of each, for a description of which see the title NUX VOMICA.

Preparations.

Abstractum Ignatiæ,—Dose, gr. ss–j.
Tinctura Ignatiæ,—strength 10 per cent. Dose, ♏ij–x.

PHYSIOLOGICAL ACTION.

Ignatia closely resembles Nux Vomica in action, a poisonous dose producing the same exaltation of the spinal functions, muscular writhing, tetanic spasms, and death by asphyxia through tetanic fixation of the respiratory muscles, but containing a greater quantity of Strychnine than the latter it is more powerful in the same dose. It especially exalts the susceptibility of the sensory nerves, and of the nerves of special sense, for a time, but an opposite condition soon succeeds, manifested by numbness and torpor with great mental depression. It causes a feeling of constriction about the throat and a sensation of intense anguish at the pit of the stomach. Its antagonists and incompatibles are the same as for Nux Vomica.

THERAPEUTICS.

Ignatia is recommended for hysteria, to control the general hyperæsthesia, insomnia, clavus hystericus, mental excitement or depression, aphonia, diseased appetite, convulsive crying or laughing, etc. It will often remove the intercostal neuralgia of hysterical subjects and the sensation as of a ball rising to the throat (globus hystericus). Cerebro-spinal irritability is diminished by small doses though excited by large ones, Ignatia being probably the most efficient controller of functional phenomena of the cerebro-spinal axis. In the convulsions of children from intestinal irritation without cerebral congestion, and in insomnia from nervous erethism, small doses of Ignatia are used with the happiest results. It is by many practitioners preferred to Nux Vomica as a stomachic tonic, and is useful in the treatment of dyspepsia, hypochondriasis and various nervous affections.

ILLICIUM, Star Anise,—is the fruit of *Illicium anisatum*, an Asiatic shrub of the nat. ord. Magnoliaceæ, and is formed by 8 boat-shaped carpels arranged in a star-shaped whorl around a central axis which is the top of the stalk. Each carpel contains a single seed, flat, oval, glossy, and of a brownish-yellow color. It contains a *Volatile Oil* which chemically and practically identical with the Oil of Anise. Another ecies, *Illicium religiosum*, is very poisonous, causing vomiting, epilepti- rm convulsions, dilated pupils and cyanosed countenance. Its carpels e more woody, shrivelled and wrinkled, and end in a curved beak. Illi- um is recognized officially as a source of the Oil of Anise, and has simi- r actions and uses to those of Anisum (see *ante*, page 101).

INULA, Elecampane,—is the root of *Inula Helenium*, a plant of e nat. ord. Compositæ, growing in Europe and N. America. It occurs slices or sections, externally grayish-brown, internally white, fleshy and ll of resin cells, of peculiar, aromatic odor, pungent and bitter taste. contains a volatile oil, a resin, a crystalline substance named *Helenin*, H_8O, and a peculiar principle resembling starch, *Inulin*, $C_6H_{10}O_5$, which found in Arnica, Taraxacum and other plants. Having the same chem- al composition as starch, Inulin differs from the latter in being colored llow by iodine, and depositing from its solution in hot water as the solu- n cools. It is contained in Elecampane in large quantity, from 19 to per cent., the latter in autumn. There are no official preparations, but decoction (℥ss to Oj) may be given in doses of ℥j–ij. Dose of the wdered root, gr. xx–ʒj.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Inula is a gentle stimulant to the secretory organs, and is said to be ex- ctorant, diaphoretic and diuretic. In large doses it causes nausea and miting. It was formerly supposed to be emmenagogue and was much ed in amenorrhœa. It is now chiefly employed as a domestic remedy in ronic bronchitis and dyspepsia, and to promote the eruption in exanthe- atous fevers.

IODUM, Iodine, I,—is a non-metallic element, existing in sea-weed, a-water, some fresh waters and fresh-water plants, also in sponge, sters, eggs, cod-liver oil, rock salt and several ores. It occurs in bluish- ack rhombic plates, of metallic lustre, peculiar odor, acrid taste and utral reaction, sparingly soluble in water (1 in 7000), readily so in her, and in 11 of alcohol at 59° F., also in a solution of potassic iodide sodic chloride. It volatilizes slowly at ordinary temperatures, and oduces a dark-blue color with gelatinized starch in a cold solution. ternally it is generally administered in the form of an Iodide or as the ompound Solution of Iodine. Dose, gr. ss–j.

Preparations of Iodine.

Tinctura Iodi,—strength 8 per cent. Dose ♏j–v, but it is generally used as a local plication or for injection into cavities.

Liquor Iodi Compositus, Lugol's Solution,—is a Solution of Iodine 5 and Iodide of Potassium 10 in Distilled Water 85 parts. Dose, ♏ j–x, well diluted.

Unguentum Iodi,—has of Iodine 4, Iodide of Potassium 1, Water 2, Benzoinated Lard 93 parts.

Amylum Iodatum, Iodized Starch,—consists of Starch 95, Iodine 5, Distilled Water q. s. ad 100 parts, triturated together, dried, and rubbed to a fine powder. Intended to enable Iodine to be given without irritating the stomach. Dose, ʒj–℥j.

Iodized Phenol, Carbolate of Iodine (Unofficial),—a mixture of Iodine and crystallized Carbolic Acid in varying proportions, generally 1 of the former to 4 of the latter, for local use.

Iodides and their Preparations.

Ammonii Iodidum, NH_4I,—a deliquescent, granular, white salt, soluble in 1 of water and in 9 of alcohol at 59° F. Dose, gr. ij–x.

Potassii Iodidum, KI,—a colorless, deliquescent, crystalline salt, of saline and bitter taste, soluble in 0.8 of water and in 18 of alcohol at 59° F. Dose, gr. v–ʒj.

Unguentum Potassii Iodidi,—has of the Iodide 12, Hyposulphite of Sodium 1, Boiling Water 6, Benzoinated Lard 81 parts.

Sodii Iodidum, NaI,—deliquescent, minute crystals, soluble in 0.6 of water and in 1.5 of alcohol. Dose, gr. v–ʒij.

Iodoformum, Iodoform, Iodide of Formyl,—small lemon-yellow crystals, of saffron-like and penetrating odor, unpleasant and iodine-like taste, sp. gr. 2000, soluble in 80 of alcohol at 59° F., and in chloroform, ether, benzol, benzin, carbon bisulphide, fixed and volatile oils, not perceptibly soluble in water. Its solutions have a neutral reaction. To remove its odor without forming a compound the best agents are Thymol (gtt. ij ad ℥j), Oil of Mirbane (gtt. vj ad gr. xv), Oil of Bitter Almonds, or Oil of Rose (gtt. j ad ℥j). Dose, gr. j–v.

Unguentum Iodoform,—Iodoform, finely pulverized, 10, Benzoinated Lard 90 parts, thoroughly mixed by trituration.

Iodol, Tetra-iodo-pyrol (Unofficial),—is a grayish-yellow powder, insoluble in water, tasteless and odorless, and contains 85 to 90 per cent. of Iodine in combination with *Pyrol*, a constituent of mineral oil. Dose, gr. ss–v, in tablet.

Other Iodides and preparations thereof are—Argenti Iodidum, Arsenii Iodidum, Liquor Arsenii et Hydrargyri Iodidum, Hydrargyri Iodidum Rubrum, Hydrargyri Iodidum Viride, Syrupus Ferri Iodidi, Pilulæ Ferri Iodidi, Plumbi Iodidum, Sulphuris Iodidum and Zinci Iodidum. As these preparations are allied in action and uses less to Iodine than to the other elements in their composition, they are described under other titles. (See *Argentum*, *Hydrargyrum*, etc.) The Iodide of Ethyl or Hydriodic Ether is described under Æther (see *ante*, page 81).

Preparation of Hydriodic Acid.

Syrupus Acidi Hydriodici,—contains 1 per cent. of absolute Hydriodic Acid, HI. Dose, ʒj–iv, well diluted.

PHYSIOLOGICAL ACTION.

IODINE is irritant to the mucous membranes and to the skin. Applied to the latter it stains a deep yellowish-brown color and combines with the albumen of the tissue, causing considerable pain and subsequent exfoliation of the epidermis. Vesication may be quickly produced if the quantity used be large. Inhaled its vapor irritates the respiratory mucous membrane, producing sneezing, cough, dyspnœa, also pain in the chest and over the frontal sinuses. In the gastro-intestinal canal it is equally irritant, but is gradually converted into the iodide or iodate of sodium, in which form or as an albuminate it is absorbed into the blood. Iodine decomposes organic molecules, and in the presence of phosphoretted or sulphuretted gases it acts like chlorine but more feebly, uniting with their hydrogen and thus breaking up those noxious compounds it is disinfectant and deodorant.

The Iodides of Sodium, Potassium, etc., are very diffusible and are as rapidly excreted; setting free nascent oxygen (Ozone) and Iodine at the points of their elimination, they are remotely irritant to the mucous membranes, setting up violent coryza, with soreness of the throat, acute conjunctivitis, profuse mucous discharges, headache and irritation of the kidneys and the skin. If used for any length of time they induce great waste and rapid elimination of waste products, causing anæmia, emaciation and mental depression. They combine with certain poisons in the system, particularly Lead, Mercury and the products of the syphilitic disease, hastening their elimination. *Iodism* is the term applied to the general condition produced by these agents, and comprises the symptoms above noted together with frontal headache, ptyalism, a saline taste in the mouth, dysphagia, temporary impotence, and an acneform eruption on the face and limbs. Sometimes the eruption is furuncular or even purpuric. Copiously diluting these salts with water promotes their excretion and to a great extent prevents the development of these results.

IODOFORM contains from 94 to 97 per cent. of Iodine and naturally resembles the latter in action. Locally its action is anæsthetic and powerfully antiseptic. It is one of the best agents to prevent decomposition and to destroy the germs of putrefaction and of disease, but must be carefully employed, as when used in quantity on an extensive raw surface it has often produced fatal results with symptoms of narcotic poisoning. The first sign of its dangerous absorption is increase of temperature, which may reach 104° or more, then headache, quick and feeble pulse, marked anxiety and restlessness, and suddenly collapse and death may supervene. The quantities which have produced fatal results from local absorption have varied from 525 to 4500 grains. In small doses internally it is considered to be a tonic and alterative, wasting does not occur, but the body weight increases and the general condition improves. In these respects its action markedly differs from that of Iodine or the Iodides.

IODOL has the same action as Iodoform, but is odorless and is said to be devoid of toxic power. Though insoluble in water it dissolves readily in the gastric juices, and is rapidly absorbed and as quickly diffused through the system.

ETHYL IODIDE (see *ante*, pages 79 and 81) is used by inhalation to bring the system rapidly under the influence of Iodine. It is a good antispasmodic and general stimulant and a very slow anæsthetic.

Antagonists and Incompatibles.

Restorative agents and vaso-motor tonics, Quinine, Digitalis, etc., are therapeutically antagonistic. Starch is the antidote to free Iodine, but the stomach must be evacuated as the Iodide of Starch is not inactive. The mineral acids, metallic salts, ammonia and vegetable alkaloids are incompatible with Iodine, and if the Potassium salt be prescribed with Potassium Chlorate a poisonous compound will result. In chronic poisoning by the iodides a free salivary flow induced by chewing Pyrethrum root will hasten the elimination of the drug.

THERAPEUTICS OF IODINE.

The tincture or the compound solution are much employed locally as counterirritants and by injection into cavities as alterative applications, instances of which are their use in glandular tumors, hypertrophied tonsils, cervical and ovarian cysts, empyema, hydrocele, etc. In various skin diseases, as chloasma, lentigo, lupus, etc., the tincture or a glycerite is well applied, and in many splenic and hepatic disorders of chronic type the ointment or tincture is a favorite counterirritant application. In sores, ulcers, fissures, etc., the Iodide of Starch or a mixture of Iodoform and Tannin, are strongly recommended, and the tincture is much used locally to promote absorption of the products of acute inflammations. In acute catarrh and hay-fever inhalations of iodine-vapor, or that from Iodized Phenol are very serviceable, and in the vomiting of pregnancy 1 to 5 drop-doses of the tincture every hour are often efficient. The compound solution well diluted is given thrice daily in typhoid fever with good results in many cases, and in malarial fevers the same preparation combined with Carbolic Acid has remarkably curative power. In strumous conditions Iodine internally is much more efficient than any of the Iodides.

THERAPEUTICS OF THE IODIDES.

The IODIDE OF POTASSIUM is the most frequently used, and is the form in which Iodine is generally administered internally. It is usually administered in simple solution or in the compound infusion or syrup of Sarsaparilla. Though its mode of action has never been explained satisfactorily, it is known by clinical experience to counteract many pathological conditions, to promote the absorption of morbid products, and the elimination of several metallic poisons. It is almost of specific rank in tertiary syphilis and its results, as neuralgiæ, paralyses from gummata, ulcerations, syphiloma of the internal viscera, lupus, chronic rheumatism and sciatica, in all of which when of syphilitic origin this iodide in large doses (50 to 150 grains daily) to saturation of the system will speedily cause improvement. So in mercurial poisoning and other chronic metallic toxæmiæ, the best treatment is by rapid saturation with Potassic Iodide. The products left behind by pneumonia, pleurisy and pericarditis often yield to moderate doses (5 grains), which if used for a prolonged period seem to retard the changes of chronic nephritis. It is the best remedy for the early stage of hepatic cirrhosis, and acts as a most efficient expectorant in chronic bronchitis. Aneurisms are often cured by large doses (20 to 30 grains) of Potassic Iodide, the sac becoming perfectly solid by fibrinous deposit. In acute catarrh and hay-fever, it is useful with Arsenic, the Iodized Phenol being at the same time used locally in weak solution. In tonsillitis and simple sore throat a weak solution (gr. ij–v ad ℥) is a good gargle, and in large doses it is often very efficient in spasmodic asthma when induced by bronchial catarrh.

The Iodide of Ammonium in grain dose repeated frequently is an ex-llent remedy in acute catarrh, hay fever, duodenal catarrh and its companying jaundice, in chronic and capillary bronchitis, and in tarrhal pneumonia to prevent caseation of the products. In the first ge of hepatic cirrhosis and in chronic malarial poisoning it is equally ficient administered in conjunction with Arsenic. Being somewhat ore irritating than the other iodides it is usually given in smaller quan-ty, but being less stable it is more energetic in action.

The Iodide of Sodium may be used instead of the potassium salt, and e same may be said of the Syrup of Hydriodic Acid if freshly prepared.

Hydriodic Acid is used as a substitute for Iodine and the Iodides. As alterative it is believed by some to possess all the powers of Iodine hile it is much less offensive to the taste and the stomach. It has been ed with benefit in asthma and bronchitis. The acid itself is not now ficial, as it is liable to change by the development of free Iodine.

Therapeutics of Iodoform and Iodol.

Iodoform is chiefly employed in local diseases as an antiseptic, anæs-etic and alterative agent. It may be dusted in fine powder over a wound r sore, or used in ethereal solution to saturate gauze or absorbent cotton. is particularly useful as an application to sloughing and phagedenic lcers, gunshot wounds, chancroids, fistulæ, sinuses and painful affections f the rectum or uterus. Internally it may be used as a general tonic and lterative in syphilis and other cachexiæ, also for neuralgia, and is fre-uently prescribed with Iron. Triturated with Tannin it forms a useful pplication to the cervix uteri in erosions and ulcerations thereof, or an Iodo-tannin may be prepared by saturating the Tincture of Iodine with Tannic Acid, and applied on a cotton tent to the uterine mucous membrane in many chronic affections of that organ.

Iodol, if equally efficient, as is claimed, will doubtless replace Iodoform largely as a topical application. Internally they are both highly esteemed as remedies in chronic gastric catarrh, and intestinal catarrh, ulceration of the gastro-intestinal mucous membrane, etc. Iodol may be given midway between meals. In bronchitis, bronchial catarrh, and various respiratory neuroses, Iodol has been found highly useful. Tuberculosis is successfully treated by Iodoform, which certainly does check the activity of the bacillus of that disease, also by Iodol in many cases.

Diabetes has been apparently cured by Iodoform.

Syphilis will be combated successfully by Iodoform or Iodol, in lieu of the Iodide of Potassium.

Hydriodic Acid is used as a substitute for Iodine and the Iodides, being less offensive to the taste and stomach. It is official only as the Syrup, the Acid itself not being a stable preparation.

IPECACUANHA, Ipecac,—is the root of *Cephaëlis Ipecacuanha*, a small shrubby plant of the nat. ord. Rubiaceæ, growing in Brazil. The root is of the thickness of a small quill and about 4 inches long, of dull gray-brown color, contorted and finely wrinkled, internally white, tough and ligneous; odor slight but nauseous, taste acrid, bitter and nauseating. It contains starch, gum, a trace of volatile oil, a crystalline alkaloid, *Emetine*, $C_{20}H_{30}NO_5$, and a glucoside named *Ipecacuanhic Acid*. Dose of the powdered root, as an expectorant gr. ss–ij, as an emetic gr. xv–xxx.

Preparations.

Extractum Ipecacuanhæ Fluidum,—Dose, ♏j–v.

Syrupus Ipecacuanhæ,—strength 5 per cent. Dose, ʒj–℥ss.

Vinum Ipecacuanhæ,—strength 7 per cent. Dose, ♏j–ʒj.

Trochisci Ipecacuanhæ,—each contains gr. ¼ of Ipecac.

Trochisci Morphinæ et Ipecacuanhæ,—each contains of Morphine Sulphate gr. $\frac{1}{40}$, of Ipecac gr. $\frac{1}{12}$, with oil of Gaultheria, Sugar, etc.

Pulvis Ipecacuanhæ et Opii, Dover's Powder,—consists of Ipecac 10, Pulvis Opii 10, Sugar of Milk 80 parts. Dose, gr. ij–xv.

Tinctura Ipecacuanhæ et Opii,—Deodorized Tincture of Opium 100 parts evaporated to 85, Fluid Extract of Ipecac 10, Alcohol q. s. ad 100. Dose, ♏v–xxx.

Emetina, Emetine (Unofficial),—a crystalline alkaloid, white becoming yellow, odorless, bitter, nearly insoluble in water, but forming with acids salts which are readily soluble. Is powerfully poisonous in large doses. Dose as an expectorant, gr. $\frac{1}{120}$–$\frac{1}{40}$; as an emetic, gr. ⅛–¼.

PHYSIOLOGICAL ACTION.

IPECAC is nauseant, emetic, expectorant, cholagogue, diaphoretic, hemostatic, sternutatory and counterirritant. Applied to the skin it produces pustulation, and used as snuff it excites violent sneezing and reflex mucous secretion, in some persons the smallest inhalation of the dust exciting an asthmatic paroxysm. Internally small doses (gr. ⅛–¼) act as a stomachic tonic and increase the gastric secretions; larger doses (gr. v–xx) are nauseant and emetic in from 20 minutes to half an hour, but the emesis produced is not violent nor is it followed by much depression. If these doses are repeated a tolerance of the stomach to the drug becomes established and a cathartic action is produced, the stools having a peculiar bilious character. The circulation is only slightly affected by Ipecac, but it relaxes the skin and increases the broncho-pulmonary mucus, being diaphoretic and expectorant. In large doses it is decidedly irritant to the intestinal canal, but here also it is capable of the same tolerance as in the stomach. In poisonous doses it has frequently produced hemoptysis and other hemorrhages.

EMETINE, the active principle, causes death in animals by cardiac paralysis, and the autopsies show evidences of gastro-intestinal irritation and hyperæmic lungs with patches of hepatization.

Antagonists and Incompatibles.

Narcotics generally antagonize the emetic action, so also do Bismuth, Carbolic and Hydrocyanic Acids. The salts of Lead and Mercury, Vegetable Acids and astringent infusions are incompatible with Ipecac.

THERAPEUTICS.

Ipecac is much used as an emetic, being safe, efficient and non-depressant, though slow of action. It is the best agent of the kind to relieve the stomach in acute indigestion and bilious sick-headache, and an ipecac-vomit is frequently very serviceable at the commencement of eruptive, continued and periodical fevers. The syrup is a favorite domestic emetic to cut short an attack of spasmodic laryngitis, and it may be used beneficially in membranous croup and capillary bronchitis.

Dysentery is a disease in which large doses of Ipecac (gr. xx every 4 hours) are used with great success, especially in the epidemic form, and in the summer dysentery of teething children. Tolerance must be established to produce its curative action. In small doses (♏j of the wine) frequently repeated, it will relieve many kinds of vomiting, especially those of nervous origin, perhaps through a sedative action on the pneumogastric. As an antihemorrhagic it has been efficiently employed in post-partum hemorrhage, menorrhagia, epistaxis, hemoptysis, etc., and it is considered very useful in night coughs, acute catarrh and bronchitis, spasmodic asthma and hay fever. In most of these affections slightly nauseating doses must be used.

IRIS, Blue Flag,—is the rhizome and rootlets of *Iris versicolor*, an indigenous plant of the nat. ord. Iridaceæ, growing in moist meadows and on the borders of swamps, having large blue flowers and a horizontal rhizome, 2 to 4 inches long, with long rootlets, slight odor but an acrid, nauseous taste. It contains tannin, sugar, starch, gum, an acrid resin, fixed oil and traces of an alkaloid. Dose of the powdered root, gr. v–xx.

Preparations.

Extractum Iridis,—Dose, gr. j–v.
Extractum Iridis Fluidum,—Dose, ♏v–ʒj.
Iridin or *Irisin* (Unofficial),—is a so-called resinoid found in the shops, of undetermined composition, but probably an oleoresin precipitated by water from an alcoholic preparation. Dose, gr. j–v.

PHYSIOLOGICAL ACTION.

Iris when fresh is actively purgative, emetic and diuretic, producing severe nausea and prostration. Iridin has been the subject of experimentation upon dogs, and is shown to be a powerful hepatic stimulant with considerable influence on the intestinal glands, being more purgative than Euonymin and less irritant than Podophyllin. In very small doses it causes obstinate constipation by producing rectal inactivity.

THERAPEUTICS.

Iris is very serviceable in duodenal catarrh with obstruction of the bile-ducts and consequent jaundice, also in malarial poisoning, bilious remittents, and jaundice of malarial origin. It is used in many hepatic and intestinal disorders as a cholagogue and purgative of mild but efficie action, also as a diuretic in dropsies. In small doses (♏ j of a tincture) i strongly recommended in a peculiar blinding headache in the right sup orbital region with nausea or vomiting, supposed to be of hepatic orig

JALAPA, Jalap,—is the tuberous root of *Exogonium purga*, a Me can plant of the nat. ord. Convolvulaceæ. It is large, turnip-shap externally dark-brown and wrinkled, internally grayish-brown with num ous concentric circles composed of small resin-cells, odor slight, ta sweetish and acrid. It contains 15 to 20 per cent. of the official Resi which is composed of two resins, *Jalapin*, soft, soluble in ether, a *Convolvulin*, $C_{31}H_{50}O_{16}$, which is hard, insoluble in ether, and the mo active of the two.

Preparations.

Abstractum Jalapæ,—is an ingredient of Pil. Catharticæ Compositæ, gr. j in each. (S *ante*, page 185.) Dose, gr. j–v.

Resina Jalapæ,—prepared by precipitation by water from a tincture. Insoluble in wate soluble in alcohol. Dose, gr. ij–v.

Pulvis Jalapæ Compositus,—Jalap 35, Potassium Bitartrate 65 parts, triturated togeth Dose, gr. x–ʒ j.

PHYSIOLOGICAL ACTION.

JALAP is an active cathartic, producing copious and watery stools, wi considerable tormina and tenesmus, also sometimes nausea. It does n produce hemorrhoids, but does increase the secretions of the intestin canal and the flow of bile. Its action is not due to any one of the contain principles, but all the active constituents are found in the resin. Co pared with other agents of the same class its action most resembles that Scammony. It is more drastic than Senna and less irritant than Ga boge, but in overdoses may produce dangerous hypercatharsis.

CONVOLVULIN in sufficient dose is an active irritant poison, produci gastro-enteritis and narcotism. Its action as a purgative seems to wholly local, as from its intravenous injection no catharsis results, yet exerts little if any irritant action on the conjunctiva, nasal mucous me brane or skin. It is not eliminated in the urine or the fæces, and is the fore probably destroyed in the system by oxidation.

THERAPEUTICS.

In olden bowel-moving times Jalap and Calomel were used together doses of gr. x each ("ten and ten"), as a routine purgative prescriptic Less ponderous doses are now considered equally efficient, and one grain each agent with the same quantity of Extract of Hyoscyamus as a corre ive may be used with advantage at the onset of fevers and inflammatio As the compound powder it is much employed to produce free watery evac ations in ascites and anasarca. Being nearly tasteless it is a useful cathar for children, and may be administered in Syrup of Rhubarb (gr. ij–v

℥ss). As a vermifuge it is efficient as an adjunct to more powerful agents, and is employed with Calomel and Santonin for the expulsion of lumbrici. Jalap is contraindicated in all inflammatory conditions of the intestinal mucous membrane, but in proper doses it is one of the most manageable and efficient cathartics.

JUGLANS, Butternut,—is the inner bark of the root collected in autumn of *Juglans cinerea*, the Butternut or White Walnut, an indigenous forest tree of the nat. ord. Juglandaceæ. It occurs in flat or curved pieces, the outer surface smooth, dark-brown, mottled, and nearly free from corky remnants of the outer bark, odor feeble, taste bitter and acrid. It contains an orange-yellow, crystalline and acrid substance named *Juglandic Acid* or *Nucin*, resembling Chrysophanic Acid, also some resin, volatile acid, etc., but neither tannin nor any alkaloid.

Preparation.

Extractum Juglandis,—Dose, gr. v–xx or more.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Juglans is a mild cathartic operating without the production of pain or irritant symptoms. It is never used in substance, but the extract is a good laxative in doses of gr. v–x, and a purgative in larger doses. It has considerable reputation in dysentery and chronic constipation.

JUNIPERUS, Juniper,—is the fruit of *Juniperus communis*, an evergreen shrub of the nat. ord. Coniferæ, growing in Europe and N. America. The fruit or berry is dark-purple with a bluish-gray bloom, having a three-rayed furrow at the apex, internally pulpy, containing 3 triangular, bony seeds. It contains a *Volatile Oil* which is official and consists of terpenes and camphors in complex combination, also a non-crystallizable principle named *Juniperin*, and grape sugar, resin, formic, acetic and malic acids, etc.

Preparations.

Oleum Juniperi,—the volatile oil, a colorless or faintly greenish-yellow liquid, of sp. gr. about 0.870, of terebinthinate and sweetish taste, and the odor of juniper, soluble in 12 of alcohol. Dose, ♏v–xx.

Spiritus Juniperi,—has of the oil 3 parts in 97 of alcohol. Dose, ʒj–℥j.

Spiritus Juniperi Compositus,—approximates closely to the best grade of "Gin" (see ante, page 86). It contains Oil of Juniper 10, Oil of Caraway 1, Oil of Fennel 1, Alcohol 3000, and Water sufficient to make 5000 parts. Dose, ℥ss–j.

Infusum Juniperi (Unofficial)—Juniper Berries ℥j in Oj of boiling water. Dose, ℥ss–ij.

Oleum Cadini, Oil of Cade (Unofficial),—is a tar obtained by the destructive distillation of Juniper wood, but is of uncertain purity. The official Oleum Picis Liquidæ (Oil of Tar) is just as efficient for all purposes to which the Oil of Cade has been applied.

PHYSIOLOGICAL ACTION.

Juniper is a stomachic tonic, diaphoretic, diuretic and aphrodisiac. The oil is the active principle, and is readily diffused, exciting increased cardiac action, stimulating the renal functions and the action of the skin, and causing a subjective sense of heat throughout the system. It is eliminated chiefly by the kidneys, and may set up renal irritation, in large doses producing strangury, priapism, hematuria, suppression of the urine, and uræmic convulsions. It imparts a violet odor to the urine, and will produce diuresis when inhaled.

THERAPEUTICS.

The Oil of Juniper is used to flavor gin and to impart the diuretic power popularly ascribed to that liquor. The medicinal use of the juniper preparations (spirit and compound spirit) is restricted to their employment as vehicles for less irritant diuretics. The oil acts therapeutically like the Oil of Turpentine, and may be used in chronic pyelitis and cystitis, prostatorrhœa, gleet, etc., but it is contraindicated in all cases where acute inflammation of the kidneys exists.

OIL OF CADE is used locally in chronic skin diseases as a stimulant application. · It is too active for acute eruptions, but has been used with benefit in chronic eczema and psoriasis. The official Oil of Tar (see PIX) is equally efficient.

KAMALA, Rottlera,—the glands and hairs from the capsules of *Mallotus philippinensis*, or *Rottlera tinctoria*, a small tree of the nat. ord. Euphorbiaceæ, growing in Abyssinia, Arabia, India, China, etc. It occurs as a granular, mobile, brick-red powder, inodorous and nearly tasteless, partly soluble in alcohol and ether. It contains several resins, one of which is named *Rottlerin*, $C_{11}H_{10}O_3$, also tannin, starch, gum, red coloring matter, etc. There are no official preparations. Dose, ʒss–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Kamala is anthelmintic and purgative, sometimes causing nausea an colic, seldom vomiting. It is used as a tæniafuge and to expel lumbri and ascarides vermiculares. One or two drachms are given suspended water, mucilage or syrup, and repeated in 4 hours if necessary. A tinture (℥vj in xvj of alcohol) may be used in doses of ʒj–℥ss. In Ind it is used locally in scabies and other skin affections, and has been foun of especial service in herpetic ringworm. As a remedy against tapewor it is perhaps next after Male-fern in efficiency, and requires no preparato treatment.

KAVA-KAVA, Ava-Kava (Unofficial),—the root of *Piper methysticum*, a shrub of the nat. ord. Piperaceæ growing in South America and the South Sea Islands. The root is large, weighing from 2 to 20 pounds, fibrous, light and spongy, and contains a crystalline principle, *Kavahin* or *Methysticin*, which is analogous to Piperin, an acrid, greenish-yellow resin *Kawin*, which is probably the active principle, also a Volatile Oil. Dose, ʒss–j, macerated in water, or the same quantity of a fluid extract.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Kava is intoxicant, diuretic and motor-depressant. A beverage is prepared in the Sandwich Islands by chewing the root and then infusing it in water or cocoanut milk, which produces a drowsy intoxication with pleasant dreams often of erotic character, and followed by severe headache. A moderate dose is tonic and stimulant, lessening the sense of fatigue and sharpening the mental faculties. It is highly recommended in gonorrhœa and gout, also in chronic gleet and obstinate cystitis.

KINO,—is the inspissated juice of *Pterocarpus Marsupium*, a tall tree of the nat. ord. Leguminosæ, growing in India. It occurs in angular, brown-red pieces, shining and brittle, inodorous, taste astringent and sweetish, soluble in alcohol. It contains 75 per cent. of a variety of tannin named *Kino-tannic Acid*, $C_{18}H_{18}O_8$, which gives a greenish precipitate with persalts of iron, also a crystalline, neutral substance, *Kinoin*, $C_{14}H_{12}O_6$, and *Kino-red*, formed from Kino-tannic Acid by oxidation, besides gum, pectin, etc. There are several other varieties of Kino in the market, brought from S. America, Africa, Australia, etc., which are products of other trees than the official one.

Preparations.

Tinctura Kino,—strength 10 per cent. Dose, ♏x–ʒij.

Pulvis Kino Compositus (Unofficial),—Kino 15, Opium 1, Cinnamon 4 (has of Opium 1 in 20). Dose, gr. v–xx.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action of Kino is the same as that of Tannic Acid, though less powerful (see *ante*, page 74), and may be used for the same purposes, both internally and locally. It is chiefly employed as an astringent gargle and as a constituent of diarrhœa-mixtures.

KRAMERIA, Rhatany, is the root of *Krameria triandra* and *Krameria tomentosa*, shrubs of the nat. ord. Polygalaceæ, growing in S. America, the first-named in Peru and the latter in New Granada. It is about an inch thick, branched below, more or less knotty, covered with a brownish bark which is very astringent; and contains 20 to 45 per cent. of *Rhatania-tannic Acid*, $C_{54}H_{24}O_{21}$, and *Rhatanine*, $C_{10}H_{13}NO_3$, an alkaloid,—also wax, gum, etc.

Preparations.

Extractum Krameriæ,—aqueous. Dose, gr. v–x.
Extractum Krameriæ Fluidum,—Dose, ♏v–ʒss.
Tinctura Krameriæ,—20 per cent. Dose, ♏v–ʒj.
Syrupus Krameriæ,—Fluid Extract 35, Syrup 65. Dose, ʒss–℥ss.
Trochisci Krameriæ,—each troche contains gr. j of the extract, with Tragacanth, Sugar and Orange-Flower Water.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Krameria possesses the same astringent qualities as Tannic Acid (see *ante*, page 74), and may be employed for the same purposes except as an antidote to Antimony. It has long had a high reputation as an injection for fissure of the anus, as a local application to spongy gums, and as a tonic for debilitated subjects.

KUMYSS, Koomiss (Unofficial),—is an effervescing fermented liquor originally prepared by the Tartars from mare's milk, but now imitated with cow's milk by adding sugar of milk, fermenting in open tanks, skimming off the casein and butter, then bottling during active fermentation. Wolff's formula for its preparation in small quantity is as follows,—

Dissolve ℥ss (a tablespoonful) of grape sugar in ℥iv of water. Dissolve gr. xx (teaspoonful) of Fleischmann's compressed yeast or well-washed and pressed-out brewer' yeast in ℥ij of cow's milk. Mix the two solutions in a quart champagne bottle, and fill to within 2 inches of the top with good cow's milk. Cork well, secure the cork with wire, keep it in a cellar or ice chest, maintaining a temperature of 50° F. or less, and agitate thrice daily. In three or four days it is ready for use, but should not be kep longer than four or five days. Draw it with a champagne tap.

The following table of analysis shows the average composition of milk, koumiss and kéfir:—

	Cow's milk.	Koumiss.	Kéfir.
Albumen,	48	11.2	38
Butter,	38	20.5	20
Sugar of milk,	41	22.	20
Lactic acid,	—	11.5	9
Alcohol,	—	16.5	8
Water and salts,	873	918.3	905

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The taste of Kumyss is acidulous and peculiar. In large quantity it takes the place of food, each quart equalling four ounces of solids. It is said to be a powerful diuretic especially in cold weather, and in warm weather to produce free diaphoresis. It is stimulating and tonic, increases the body nutrition and produces considerable somnolence. The stomach s very tolerant of it, and retains it when any other food will be rejected. t is easily assimilated and very nutritious.

Kumyss is an invaluable article of diet in many wasting diseases, especially phthisis. It is also of great benefit in dyspepsia, the diarrhœa of hildren, convalescence from acute maladies, chronic affections of the idneys, chronic bronchitis, and other cachexiæ. In cases of feeble igestive power ℥j every hour is sufficient, but as its digestion and assimi-tion increase it may be given almost *ad libitum*, and when used with ther food a half-pint may be taken after each meal.

Kefir is the name of a fermented drink prepared from the milk of a ow or mare by the addition of a mushroom-like ferment found near the now-line in the Caucasian mountains. It is used by the natives of the Asiatic plains as a remedy for struma, anæmia, lung and stomach diseases. Kefir is richer in albumen than Kumyss, is less alcoholic and less acid.

LACTUCARIUM, Lettuce,—is the concrete milk-juice of *Lactuca irosa*, or Acrid Lettuce, a biennial European plant, of the nat. ord. Compositæ. It occurs in sections of cakes or irregular pieces showing the orm of the vessel in which it hardened, externally reddish-brown, internally white or yellowish and of waxy lustre, odor heavy and narcotic, taste bitter, partly soluble in alcohol and in ether, and yielding a turbid mixture when triturated with water. Lactucarium is a mixture of several substances, the most important being *Lactucerin*, 42 per cent., a crystalline, tasteless body, resembling caoutchouc, insoluble in water and probably inert; *Lactucin*, 0.3 per cent., a neutral principle, crystallizing in pearly scales, insoluble in cold water, persistently bitter; *Lactucic Acid*, bitter, amorphous, but crystallizes after long standing.

Preparations.

Extractum Lactucarii Fluidum,—Dose, for a child ♏j–iij, for an adult ♏x–ʒj, according to the activity of the drug.

Syrupus Lactucarii,—5 per cent. Dose, ʒj-℥j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Lactucarium is feebly hypnotic, somewhat sedative and diuretic. It is supposed to act similarly to Opium, but very feebly and without depressing after-symptoms. Its preparations are very uncertain in activity, and are chiefly used as placebos, to allay cough and quiet nervous irritability. The syrup is a good vehicle for expectorants and antispasmodics.

LANOLINUM, Lanolin,—is a cholesterin fat obtained from the suds from the washing of sheep's wool, by a process patented in the United States by Prof. Liebreich, the discoverer of Chloral; and though a very old medicament, being mentioned by Ovid, Herodotus, Pliny and Aristophanes, it is now being introduced to the medical world as the best basis for ointments. It contains 25 to 30 per cent. of water, and readily unites with 110 per cent. of its own weight of water; differing from all other fatty substances, chiefly in resisting saponification and the action of water, having no tendency to become rancid. It readily passes through the integument, carrying with it any medicament with which it is charged. It is a perfectly neutral base, and hence is not liable to decompose any ordinary substance. The difficulty about its use has been its very disagreeable sheepy smell, but recent samples, exhibited to the British Medical Association, seem to have been devoid of this objectionable quality. It is particularly useful in chronic skin diseases where there is infiltration, and a penetrative action is desired for medicaments. In a few cases of acute and subacute eczema it has proved irritating, but as a rule it is perfectly bland. Where a simple protective action is desired it is inferior to Lard, Vaseline or Cold Cream.

LAPPA, Burdock,—is the root of *Lappa officinalis*, the common Burdock, a coarse-looking biennial weed of the nat. ord. Compositæ, found in waste places and along roadsides in Europe, Asia and N. America. Three varieties are recognized,—*Lappa major*, *L. tomentosa* and *L. minor*, of which the first-named is most frequently met with in this country. The root is about a foot long, an inch thick, has a feeble odor and a mucilaginous, bitterish taste, and contains a bitter principle, traces of a volatile oil, also inulin, resin, tannin, mucilage, sugar, etc. There are no official preparations. Dose, ʒj–ij, in infusion, decoction or tincture. Dr. Squibb recommends a tincture of the seed, ℔ j of ground seed to gall. j of whiskey, allowed to stand for 2 weeks before decanting, and used in doses of ʒij–iij before meals.

Physiological Action and Therapeutics.

Lappa promotes all the secretions and is considered aperient, diuretic and diaphoretic, without irritating qualities. In decoction it has been a popular domestic remedy for many morbid conditions, especially rheumatism, gout, pulmonary catarrhs and chronic cutaneous affections. By several practitioners it is praised as an alterative in constitutional diseases, as syphilis and scrofula, also as an external application to swellings, hemorrhoids and chronic sores. A tincture of the seed has proved remarkably efficient as a stomachic tonic and has cured several cases of psoriasis inveterata. (See Squibb's *Ephemeris*, vol. i., page 116.)

LAVANDULA, Lavender,—the flowers of *Lavandula vera*, a small European shrub of the nat. ord. Labiatæ, largely cultivated in England. They have a bluish-gray tubular calyx, a violet-blue corolla, a fragrant odor, and an aromatic, camphoraceous taste, and contain resin and tannin, also a *Volatile Oil* which is official. Lavender is a constituent of Vinum Aromaticum.

Preparations.

Oleum Lavandulæ,—is a volatile oil distilled from the flowering tops or the whole herb. It is much coarser than the oil of lavender flowers and more stimulant. Dose, ♏j–v.

Oleum Lavandulæ Florum,—is a volatile oil distilled from fresh Lavender, and having the fragrant odor of the flowers. Sp. gr. 0.890, soluble in alcohol and in acetic acid of 90 per cent. It is a constituent of Spiritus Odoratus. (See *ante*, page 86.) Dose, ♏j–v.

Spiritus Lavandulæ—has of the Oil of Lavender Flowers 3 parts in 97 of Alcohol. A perfume and flavoring. Dose, ʒss–j.

Tinctura Lavandulæ Composita,—an aromatic stimulant composed of Oil of Lavender 8, Oil of Rosemary 2, Cinnamon 18, Cloves 4, Nutmeg 10, Red Saunders 8, Alcohol 680, Water 270, Diluted Alcohol q. s. ad 1000 parts. Dose, ʒss–ij. Is a constituent of Liquor Potassii Arsenitis.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Lavender is aromatic, stimulant and carminative, but is rarely used alone as a medicine. It is an agreeable flavoring and perfume, in the form of the official spirit, which is sold under the name of "Lavender-water," after the addition of Oil of Bergamot and Essence of Ambergris. The compound tincture, formerly called the compound spirit of Lavender, is a very agreeable compound of spices, and is much used as a remedy for gastralgia, nausea, flatulence, etc., and as an adjuvant or corrigent of other medicines.

LEPTANDRA, Culver's Root,—is the rhizome and rootlets of *Leptandra virginica*, an indigenous perennial plant of the nat. ord. Scrofulariaceæ. The rhizome is horizontal, about 5 inches long and ¼ inch thick, bent and branched, with thin, wrinkled rootlets, inodorous, taste bitter and feebly acrid. It contains a glucoside named *Leptandrin*, which is probably the active principle, also Saponin, resin, tannin, etc. The Leptandrin of the shops is an impure alcoholic extract.

Preparations.

Extractum Leptandræ,—Dose, gr. j–iij.

Extractum Leptandræ Fluidum,—Dose, ♏xx–ʒj.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Leptandra is tonic, laxative, and like other resin-bearing purgatives is decidedly cholagogue. The recent root is a violent cathartic, but in the dried state it is less active. It is indicated in duodenal indigestion and chronic constipation with insufficiency of the biliary and intestinal secretions.

LICOPERDON GIGANTEUM, Puff-Ball,—is a common fungus of the nat. ord. Trichogastres, found in hilly and wooded districts.

The dust, which consists of the capillitium and spores, is a valuable hemostatic, and dusted over bleeding surfaces acts promptly in arresting hemorrhage. It has been proposed as a surgical dressing, but while useful in emergencies where other agents are unattainable, the fetor which results from its application to wounds will prevent its use becoming general for this purpose. It may prove of value as an internal hemostatic in hematemesis and the hemorrhage of typhoid fever.

LIMON, Lemon,—is the fruit of *Citrus Limonum*, a tree of the nat. ord. Aurantiaceæ, native in Asia but cultivated in southern Europe and many other countries. It is official in the two forms described below. The Orange (*Citrus vulgaris* and *C. Aurantium*), the Citron (*Citrus medica*), and the Lime (*Citrus acris*), all belong to the same genus as the Lemon (*Citrus Limonum*).

LIMONIS CORTEX, Lemon Peel,—is the rind of the recent fruit, and contains a *Volatile Oil*, $C_{10}H_{16}$, which is official, and a bitter crystalline glucoside, *Hesperidin*, $C_{22}H_{26}O_{12}$, chiefly contained in the white portion of the rind.

LIMONIS SUCCUS, Lemon Juice,—is the freshly expressed juice of the ripe fruit, each lemon yielding from ⅔ to 1 fluid ounce. It contains about 7 per cent. of free Citric Acid, besides Phosphoric and Malic Acids, Citrates of Potassium and of other bases, etc. Dose, ℥ss–iv.

ACIDUM CITRICUM, Citric Acid, $H_3C_6H_5O_7.H_2O$,—is obtained from the juice of the Lemon or the Lime by adding chalk to form the Citrate of Calcium, which is then decomposed by dilute Sulphuric Acid. It occurs in colorless, rhombic crystals which are very soluble in water. A solution of gr. xvij in ℥ss of water corresponds to ℥ss of fresh lemon-juice, and this quantity of either will neutralize of Potassium Bicarbonate gr. xxv, of Sodium Bicarbonate gr. xx, and of Ammonium Carbonate gr. xivss. Dose, gr. x–xxx.

Citrates of Bismuth, Bismuth and Ammonium, Iron, Iron and Ammonium, Iron and Quinine, Iron and Strychnine, Lithium, Potassium, eight in all, are official. They are described under their respective bases, to which rather than to the acid their medicinal qualities are due.

Preparations.

Oleum Limonis, Oil of Lemon, $C_{10}H_{16}$,—is the volatile oil, isomeric with oil of turpentine, and extracted from fresh lemon peel by mechanical means. It is used for flavoring and is an ingredient of Spiritus Limonis, Spiritus Odoratus, and Spiritus Ammoniæ Aromaticus. Dose, ♏j–v.

Spiritus Limonis, Essence of Lemon,—prepared by macerating 6 parts of the oil and 4 of the peel in 90 of alcohol. Used for flavoring. Dose, according to the alcohol required to be given.

Syrupus Limonis,—Lemon-juice 40, Lemon-peel 2, Sugar 60, Water q. s. ad 100 parts. Dose, indefinite.

Syrupus Acidi Citrici,—Citric Acid 8, Water 8, Spirit of Lemon 4, Syrup 980 parts. Dose, indefinite.

PHYSIOLOGICAL ACTION.

LEMON-PEEL is bitter and probably tonic to the stomach, but is only used for flavoring purposes. LEMON-JUICE, on the other hand, is refrigerant and antiscorbutic, entering the blood as alkaline citrates, potassium salts and phosphoric acid, the citrates being therein partly oxidized into CO_2 and H_2O, while the potassium salts and phosphoric acid probably act upon the red corpuscles.

CITRIC ACID has the same general action as Acetic and the other vegetable acids (see ACIDUM ACETICUM, *ante*, page 58). It is wholly decomposed in the blood, and appears to be non-toxic in man, but used internally it may precipitate uric acid and thus promote the formation of calculi.

THERAPEUTICS.

Lemon-juice is employed largely in the treatment and prevention of scurvy, in which disease it possesses powers of specific rank, but whether its action therein is due to the citric acid, the phosphoric acid or the salts of potassium is not known. Lime-juice is equally efficient but Citric Acid itself is not so.

As refrigerants and diuretic mixtures in fevers, Lemon-juice and Citric Acid are much used, entering into the composition of lemonades, effervescing draughts, etc., to allay thirst and subdue restlessness, and to promote the action of the skin and the kidneys. For acidity of the stomach they are efficient if given in small doses before meals, but the mineral acids are usually preferred for this purpose. Long-continued they will impair digestion and impoverish the blood. Atheromatous degeneration of the vessels is said to be retarded by the daily use of lemon-juice, which is supposed to dissolve the excess of organic matter and to aid its excretion. Obesity may be reduced by using the juice of limes or lemons in large quantity, but it will be done at the expense of the digestion. Lemon-juice has been found of service in acute rheumatism, probably through the alkalies which it conveys into the blood. As a local application it has been found efficient in pruritus scroti, sunburn, and post-partum hemorrhage, and as a gargle in diphtheritic sore throat.

LINUM, Flaxseed, Linseed,—is the seed of *Linum usitatissimum* (flax), a cultivated annual plant of the nat. ord. Linaceæ. The seeds are small, flattened, oblong-ovate bodies, brown and glossy, inodorous, taste mucilaginous and bitter; and contain 15 per cent. of *Mucilage* in the epithelium, also 30 to 40 per cent. of *Fixed Oil* in the embryo. Ground Flaxseed should yield not less than 25 per cent. of the fixed oil.

Preparations.

Oleum Lini, Linseed Oil,—the fixed oil expressed from flaxseed without the use of heat. A yellow, oily liquid, of slight odor, bland taste, and neutral reaction, soluble in

5 of absolute alcohol and in 1½ of ether. Consists chiefly of the Glyceride of *Linoleic Acid* $C_{16}H_{28}O_4$, which having a powerful affinity for oxygen becomes resinoid on exposure to the air, making it a "drying oil." Dose, ℥ss–ij.

Infusum Lini, Linseed Tea (Unofficial),—Flaxseed ʒiij, Liquorice-root ʒj, Boiling Water ℥x, infused for 4 hours and strained. Dose, indefinite.

Carron Oil (Unofficial),—is made by emulsifying equal parts of Linseed Oil and Lime-water. The official Linimentum Calcis is intended for the same purposes.

Physiological Action and Therapeutics.

Flaxseed is demulcent, emollient, expectorant and diuretic. The oil is laxative in a dose of ℥j, and in smaller doses is oxidized in the system and excreted as a resinoid body by the kidneys, which it stimulates slightly. The infusion contains the mucilaginous principle and a small portion of the oil, and is advantageously used in inflammations of the mucous membrane of the throat, the gastro-intestinal tract and the urinary passages. It is an excellent demulcent in coughs of various kinds, and will be found very serviceable in cystitis, irritable bladder, renal colic, strangury, etc. The oil may be administered internally as a laxative but is usually given as an enema, and has considerable reputation as a remedy for hemorrhoids in doses of ℥ij twice daily. Externally it is a favorite application to burns when made into an emulsion with lime-water. The ground seed (flaxseed meal) is one of the best agents for use in poultices, and is universally employed for that purpose.

LITHIUM, Li,—is represented in the Pharmacopœia by five of its salts, of which the Carbonate is but slightly soluble while the others are readily so. The low atomic weight of this metal (7) makes its saturating power greater than that of the other alkaline metals, hence the value of its salts in medicine.

Salts of Lithium.

Lithii Benzoas, Benzoate of Lithium, $LiC_7H_5O_2$,—is classed with the Benzoates and described under *Benzoic Acid*. (See *ante*, page 129.)

Lithii Bromidum, Bromide of Lithium, LiBr,—is classed with the Bromides and described under *Bromine*. (See *ante*, page 133.)

Lithii Carbonas, Carbonate of Lithium, Li_2CO_3,—a light, white powder, permanent in the air, odorless, of alkaline taste and reaction, soluble in 130 of water, insoluble in alcohol. Dose, gr. ij–xv.

Lithii Citras, Citrate of Lithium, $Li_3C_6H_5O_7$,—a white, deliquescent powder, odorless, of faintly alkaline taste and neutral reaction, soluble in 5½ of water, slightly in alcohol. Dose, gr. v–xxx.

Lithii Salicylas, Salicylate of Lithium, $2LiC_7H_5O_3.H_2O$,—is classed with the Salicylates and described under *Salix*.

Physiological Action.

The Lithium salts have strong alkaline qualities and act on the system in the same manner as other alkalies (see under Potassium). The high saturating power of this metal makes its salts more alkaline than those of Potassium, Sodium or Calcium, hence more efficient in alkalinizing the urine. The Urate of Lithium is the most soluble of the urates, hence the value of lithium salts in the uric acid diathesis. The Carbonate and Citrate are the salts referred to in this connection, the others partaking more of the qualities of their acid factors. Both these salts are antacid and strongly diuretic, the Carbonate being but slightly soluble is given in wafer or in carbonic acid water, and the Citrate in solution. The latter may be extemporaneously prepared by adding Citric Acid to an aqueous solution of the Carbonate, and in the organism is decomposed, the citric acid being oxidized and the carbonate formed. Many mineral waters contain small quantities of the carbonate, varying from a mere trace to 0.01 grain to the pint, an amount so minute as to be practically inert in comparison with the much greater quantities of potassium and sodium salts in the same waters.

THERAPEUTICS.

The Carbonate and Citrate of Lithium are extensively used in gout and the lithæmic diathesis, for the purpose of holding the uric acid in solution as urate of lithium, and preventing its deposit in the tissues as urate of sodium which is less soluble. Their prolonged administration is so efficient in this affection that they have been credited with the power of dissolving uric acid calculi and called lithontriptics. They are also highly useful in the indigestion and rheumatism of obese subjects, and in irritable bladder from excess of acid in the urine. Lithiated Arsenical Water has been lately praised as a remedy in diabetes.

LOBELIA, Indian Tobacco,—the leaves and tops of *Lobelia inflata* (nat. ord. Lobeliaceæ), collected after a portion of the capsules have become inflated. The plant is a common annual weed growing on roadsides throughout the United States, having pale-green, alternate leaves, a single, erect and very hairy stem, with hairy branches and small, pale-blue flowers, odor slight but irritating, taste at first mild, afterwards burning and acrid. It contains gum, resin, fixed oil, wax, lignin, salts of lime, potassium and iron, a liquid alkaloid *Lobeline*, which is the narcotic principle of the plant, also *Lobelic Acid*, and an acrid substance named *Lobelacrin*.

Preparations.

Extractum Lobeliæ Fluidum,—Dose, ♏j–x.
Tinctura Lobeliæ,—20 per cent. Dose, ♏v–xxx.
Acetum Lobeliæ,—10 per cent. Dose, ♏v–ʒj.
Infusum Lobeliæ (Unofficial),—℥j to the pint. Dose, ʒj–℥j.
Lobelin (Unofficial),—an impure resinoid. Dose, gr. ss–j.

PHYSIOLOGICAL ACTION.

Lobelia has an acrid, nauseous taste, and a heavy, unpleasant odor. It is expectorant, diaphoretic, emetic, purgative, antispasmodic, motor-depressant and narcotic. It excites an abundant flow of saliva, mu gastric mucus, profuse urination and sweating, with nausea, vomiting a great depression. The heart's action is enfeebled, and the blood-pressu at first increased, soon falls; muscular debility, reduced temperature a coma follow, and death occurs by paralysis of the respiratory apparat The drug produces paralysis of the motor nerve-trunks, the periphe vagi, and probably the respiratory and vaso-motor centres also. strongly resembles tobacco in its action, and is highly dangerous in medicinal doses, having caused many deaths when administered the peutically, the most important instance of its fatal results being the c of Ezra Lovett, Jr., who in 1809 was poisoned by Lobelia administe by the founder of the Thomsonian sect of medical practitioners. T responsible party escaped conviction on the plea that he gave the drug ignorance of its qualities.

Antidotes and Incompatibles.

Tannic Acid to form the insoluble tannate. Strychnine, Picrotoxine and Theb antagonize its action on the nervous system;—the vaso-motor excitants, as Alco Digitalis, Belladonna, Ergot, etc., antagonize its effects on the circulation. Ca alkalies are incompatible, decomposing the alkaloid.

THERAPEUTICS.

Lobelia was a favorite remedy with the Indians at the time of the f settlement of the United States, and was introduced into regular pract as an anti-asthmatic, after having served as the main stock-in-trade of irregular practitioners for many years. Its principal therapeutic actio that of an antispasmodic, and in cautious hands it is extremely useful paroxysmal spasmodic asthma, as well as in dry cough with constant ti ling in the throat. As an enema in cases of strangulated hernia the in sion is much safer than Tobacco and fully as efficient, and may overco the obstruction in intussusception, while the tincture in 2-drop doses ev hour will often relieve a case of impacted cæcum. In constipation fr atony and deficient secretion a 10-minim dose of the tincture at b time acts excellently, and in the poison-oak eczema the infusion is a go local application. As an emetic it is entirely too depressant for chi ren's use.

LYCOPODIUM,—is a very mobile, pale-yellow, fine powder, co sisting of the sporules or seeds of the Club-moss, *Lycopodium clavatu* and of other species of Lycopodium (nat. ord. Lycopodiaceæ). T plant is a native of Europe and the U. S., has a trailing stem several f long, with smooth, deep-green, pointed leaves, flowers in terminal spik and yellow capsules which contain the seeds. Lycopodium is odorle tasteless, floats on water which does not wet it, and burns quickly wh thrown on a flame. It should be free from pine-pollen, starch, sand and other impurities, which are detected by means of the microscope, the seeds being about $\frac{1}{800}$ of an inch in diameter, four-sided and reticulated, with short projections on the edges. They contain about 47 per cent. of a bland, fixed oil.

Physiological Actions and Therapeutics.

The plant was formerly considered to be diuretic and anti-spasmodic, and was used in rheumatism, epilepsy and pulmonary and renal disorders. The powder is now employed quite extensively in pharmacy to facilitate the rolling of a pill-mass and to prevent adhesion of pills to each other. It makes an excellent absorbent and protective powder when dusted over an excoriated surface, as seen between the thighs of infants.

By the homœopathic practitioners Lycopodium is elevated to the rank of an active drug when triturated with sugar of milk sufficiently long to break up the seeds and liberate their oily contents. In their first centesimal trituration ($\frac{1}{100}$) it is said to have produced symptoms of high excitement of the circulation and irritation of the urinary organs, and they profess to use it with benefit in many affections of the mucous tracts, dyspepsia, pyrosis, flatulence, constipation, ileo-colitis of infants, hepatic congestion, aneurism, chronic affections of the lungs and bronchi, diphtheria, lithiasis, intertrigo, porrigo capitis, plica polonica and pruritus ani, in all of which as an internal remedy and in high attenuation.

MAGNESIUM, Mg.—This metal is represented by its Oxide, Carbonate, Citrate, Sulphate and Sulphite, of which the Sulphate occurs native in sea-water, caves, etc., the others being prepared from it. The first two are almost insoluble in water or alcohol. Its salts are either white or colorless, and those which are official are as follows,—

Official Salts of Magnesium.

Magnesia, Light Magnesia, Oxide of Magnesium, MgO,—made by heating the light carbonate in a crucible to expel nearly all the carbonic acid. A white, light and very fine powder, almost insoluble in water, insoluble in alcohol, and gelatinizes with 15 of water after standing ½ hour, having become hydrated. Is a constituent of Pulvis Rhei Compositus, Massa Copaibæ and Ferri Oxidum Hydratum cum Magnesia. Dose, gr. x-ʒj.

Magnesia Ponderosa, Heavy Magnesia, Oxide of Magnesium, MgO,—is a white, dense and very fine powder, corresponding in other properties and reactions with Magnesia, except that it does not gelatinize with water. It is made by calcining the heavier variety of the carbonate, and is much slower in action than the light magnesia. Dose, gr. x-ʒj.

Magnesii Carbonas, Carbonate of Magnesium, $(MgCO_3)_4Mg(HO)_2.5H_2O$,—light, friable masses, or powder, odorless and tasteless, insoluble in alcohol, almost insoluble in water. Dose, gr. x-ʒj.

Magnesii Sulphas, Sulphate of Magnesium, Epsom Salt, $MgSO_4.7H_2O$,—colorless prisms or acicular needles, slowly efflorescent, odorless, of cooling, saline taste, and neutral reaction, very soluble in water, insoluble in alcohol. Is a constituent of Infusum Sennæ Compositum. Dose, ʒj-℥j.

Magnesii Sulphis, Sulphite of Magnesium, $MgSO_3.6H_2O$,—a white, crystalline powder, becoming oxidized on exposure to air, of sulphurous and slightly bitter taste, and neutral or slightly alkaline reaction, soluble in 20 of water, insoluble in alcohol. Dose, gr. x–xxx.

Preparations.

Magnesii Citras Granulatus, Granulated Citrate of Magnesium,—prepared from the Carbonate with Citric Acid, Sugar, Bicarbonate of Sodium, Alcohol and Distilled Water. A coarsely granular, white salt, deliquescent, of acidulous taste and acid reaction, soluble with copious effervescence in 2 of water, insoluble in alcohol. Dose, ʒ ij–℥j.

Liquor Magnesii Citratis,—prepared from the Carbonate gr. 200, Citric Acid gr. 400, Syrup of Citric Acid gr. 1200, Potassium Bicarbonate gr. 30, Water q. s. ad ℥ xij. Dose, ℥ iv–vj, repeated for catharsis.

Trochisci Magnesii,—each troche contains of Magnesia gr. 3, Nutmeg gr. 0.15, with Sugar and Mucilage of Tragacanth. Dose, indefinite.

Mistura Magnesiæ et Asafœtidæ, Dewees' Carminative,—contains of the Carbonate per cent., Tincture of Asafœtida 7, Tincture of Opium 1, Sugar 10, and Distilled Wate 77. Dose, ʒ ss–iv. Used for flatulent colic and diarrhœa in infants.

PHYSIOLOGICAL ACTION.

MAGNESIA and the CARBONATE OF MAGNESIUM are mildly laxative an antacid, neutralizing free acids in the stomach and forming therewith laxative salts. If used in large quantity for any length of time it ma become hydrated and produce intestinal concretions. The freshly-precipitated hydrate (see above, MAGNESIA) is an antidote to Arsenic i solution, but less effective than the Hydrated Sesquioxide of Iron, wit which it is combined in the official Ferri Ox. Hydratum cum Magnesia (See *ante*, page 216.) Magnesia may also be used in acid or phosphorus poisoning.

The CITRATE and SULPHATE are saline cathartics, the latter being th most powerful, producing prompt and free watery discharges, with bu little griping or irritation, but frequently a sense of coldness and depression. The purgative action is chiefly due to increase of the intestina fluids by an outward osmosis from the vessels, and not from increase o the secretions of the glandular appendages. If the purgative actio should not take place a diuretic one will result, but to secure the desire catharsis the drug should be administered in a considerable quantity o water. Sulphate of Magnesium is the principal aperient constituent o many of the popular laxative mineral waters, as Friedrichshall, Püllna Hunyadi, etc.

The SULPHITE shares the actions and uses of the other sulphites, and i more properly considered with them. (See *ante*, page 73.)

THERAPEUTICS.

Magnesia and the Carbonate are used as antacids and laxatives, in acidity, sick headache, flatulent colic, etc., and as antidotes in poisoning b acids, arsenic, phosphorus, mercuric and cupric salts. The Citrate is an agreeable laxative, cooling and acceptable to the stomach. The Sulphate is the most efficient of the saline cathartics and has a wide field of application. In acute inflammatory conditions, renal and cardiac dropsy ascites from obstruction of the portal circulation, increased blood-pressure within the cranium, intestinal obstruction without acute inflammation, the constipation of lead poisoning, and habitual constipation from deficiency of the intestinal secretions, this agent will be found to be exceedingly serviceable. Acute dysentery is well treated by Magnesium Sulphate combined with diluted Sulphuric Acid, and followed by Opium and starch enemata. Bleeding from hemorrhoids and uterine hemorrhage are often relieved by the same combination when other agents fail. The ferro-saline mixture (see *ante*, page 218) is a very useful laxative in the constipation of anæmic women. The bitter taste of Epsom Salt is best covered by coffee.

MAGNOLIA,—is the bark of *Magnolia glauca* (Sweet Bay, Swamp Sassafras), *M. acuminata* (Cucumber-tree), and *M. tripetala* (Umbrella-tree), all of which belong to the nat. ord. Magnoliaceæ, and are indigenous to the eastern and southern States. It occurs in quilled or curved pieces, of orange-brown color externally, whitish or a pale-brown internally, taste astringent, pungent and bitter. It contains a crystalline principle named *Magnolin*, which is insoluble in water, but soluble in alcohol, ether, etc. Dose of the powdered bark, ʒss–j. There are no official preparations.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Magnolia is an aromatic bitter tonic and diaphoretic, usefully employed in chronic rheumatism, remittent and intermittent fevers. In the latter affection it will arrest the paroxysms if used freely.

MALTUM, Malt,—is the seed of *Hordeum distichum*, Barley (nat. ord. Graminaceæ), caused to enter the incipient stage of germination by artificial means and dried. The germination is allowed to go far enough to develop the maximum amount of *Diastase*, the peculiar ferment by which the starch of the grain is converted into Glucose. Malt is the source of beer, ale and whiskey, and is composed of the germinated, dead grains with their acrospires and radicles. It should be fresh, not darker in color than a pale amber, and of agreeable odor and sweet taste.

Preparations.

Extractum Malti,—a liquid of the consistence of thick honey, containing all the soluble principles of malt in permanent form. It consists chiefly of diastase and glucose. Dose, ʒj–iv.

Horlick's Food (Unofficial),—is, like Mellin's and many other foods for children, a granulated Extract of Malt. *Hoff's Malt Extract* is another such preparation, containing alcohol, and corresponding to a concentrated beer.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Malt Extract is directly nutritive, containing good food elements, and indirectly so from the presence of the ferment Diastase, which converts the starch of bread or other farinas into sugar. It is usefully employed in wasting diseases, and mixed with milk or oleaginous foods it aids their digestion and assimilation. It may be used to form a syrupy mixture with preparations of Iron or Cinchona.

MANACA (Unofficial),—is the root of *Franciscea uniflora*, a shrub of the nat. ord. Scrophulariaceæ, indigenous to Brazil, where it is known as Mercurio-vegetal, or Vegetable Mercury, a name applied by charlatans to a number of widely differing plants. Very little is known about Manaca, but it is extensively advertised as an unfailing remedy for subacute and chronic rheumatism. It is also considered purgative, diuretic, emmenagogue and antisyphilitic, being official in the Brazilian Dispensatories, and noticed as follows in the *Dict. de Botan. Brazileira.*

> "This whole plant, but especially the root, excites powerfully the lymphatic system, eliminating morbid matter by the skin and kidneys. It is antisyphilitic; the interior bark is nauseating and stimulates the throat. In small doses it is resolvent; in larger purgative, diuretic and emmenagogue. In large doses it is an acrid poison."

A fluid extract is on the market, the average dose of which is ♏x three or four times daily.

MANGANUM, Manganese, Mn.—This metal is represented in the Pharmacopœia by two of its salts, viz.—the native Black Oxide and the Sulphate, as follows,—

Mangani Oxidum Nigrum, Black Oxide of Manganese, Dioxide of Manganese,—native, crude Binoxide of Manganese, containing at least 66 per cent. of the pure Oxi MnO_2. A heavy, grayish-black powder, odorless and tasteless, insoluble in water or al hol, giving off oxygen gas at a red heat, and if heated with hydrochloric acid it cau the evolution of chlorine gas. Is used in preparing Chlorine Water. Dose, gr. ij–x.

Mangani Sulphas, Sulphate of Manganese, $MnSO_4.4H_2O$,—colorless prisms, slightly bitter and astringent taste, faintly acid reaction, very soluble in water, insoluble alcohol. Dose, gr. ij–v.

Preparations.

Potassii Permanganas, Permanganate of Potassium, $K_2Mn_2O_8$,—deep, purple-viol prisms, of sweet and astringent taste, neutral reaction, soluble in 20 of water with scanty, brown residue, decomposed by alcohol. It should be kept in well-stopper bottles, and should not be triturated nor combined in solution with organic or readi oxidizable substances. Dose, gr. ss–ij, in distilled water.

Syrupus Mangani Iodidi, Syrup of the Iodide of Manganese (Unofficial),—contai about ʒj of the iodide in each ℥. Dose, ♏x–xxx. For formula see U. S. D., pa 1691.

Syrupus Ferri et Mangani Iodidi, Syrup of the Iodide of Iron and Manganese (U official),—each ℥ contains gr. 50 of the mixed iodides in the proportion of 3 of t Iodide of Iron to 1 of that of Manganese. Dose, ♏x–xxx. For formula see U. S. page 1692.

Ferri et Mangani Carbonas Saccharatus, Saccharated Carbonate of Iron and Manganese (Unofficial),—is a tasteless, reddish-brown powder. Dose, gr. v–xx. For formula see U. S. D., page 1693.

PHYSIOLOGICAL ACTION.

The salts of MANGANESE in small doses improve the appetite and the digestion and stimulate the action of the heart. Used in larger doses and for considerable length of time they lower the heart's action, paralyze the muscular system, especially the muscular coat of the arteries, causing progressive wasting, paraplegia, and acute fatty degeneration of the liver. They are gastro-intestinal irritants, and the Sulphate is emeto-cathartic and decidedly cholagogue. Manganese is closely associated with Iron in the blood, bile, etc., in the proportion of about 1 to 20. The Black Oxide is an efficient emmenagogue.

PERMANGANATE OF POTASSIUM is an active oxidizer, containing as it does a large proportion of oxygen which it yields very readily in the form of ozone, and then becomes the binoxide of manganese. This property gives it the qualities of an antiseptic, a disinfectant and a deodorant. It is considered by some authorities to be an efficient emmenagogue. Used internally it must be instantly decomposed in the stomach, and probably is not absorbed in its own state.

THERAPEUTICS.

The salts of Manganese are used by those practitioners who affect to see a manganese-anæmia in cachectic subjects, and they are always combined with ferric preparations. In amenorrhœa, gastrodynia and pyrosis the purified oxide is a good remedy in doses of 10 to 15 grains, and the same preparation is used as an ointment in many skin diseases. In jaundice of malarial origin or catarrh of the biliary passages the sulphate gives good results.

PERMANGANATE OF POTASSIUM is used as an antiseptic and oxidizing agent in diphtheria, scarlatina, septicæmia, erysipelas, etc., given internally and used locally at the same time. It is given with apparent benefit in dyspepsia, flatulence, lithæmia and obesity, and has often seemed to be of service in acute rheumatism. In amenorrhœa it is reported to be very efficient, and has lately been used with success as a remedy for the bites of venomous serpents and for other animal poisons. Locally it is frequently employed (ʒj to the pint) to correct fetor in cancer, ulcers, caries, abscesses, ozæna, and it will destroy the odor of a foul breath or that of the fetid perspirations of the feet. It is used both as a test and as a corrigent for organic impurities in drinking-water.

MANGANESE is becoming more of an acknowledged remedy in derangements of the menstrual function, as irregular or scanty menstruation, amenorrhœa, menorrhagia, and even metrorrhagia. By some authorities, the emmenagogue power of Potassium Permanganate is ascribed to its large proportion of Oxygen, which it is supposed to give up to the uterus; as, until recently, Potassium Chlorate was supposed to do by the system at large. According to the views of others who have studied its action, Manganese should be classed with the *excito-motors*, increasing arterial tension, and specifically acting upon the uterus. The best preparation is the *Binoxide*, in freshly-made pills of two grains each, of which 1 to 3 or 5 pills may be taken twice or thrice daily. The *Permanganate of Potassium* has generally been the preparation given when the effects of Manganese were desired; but as it causes great gastric irritability, with abdominal pains and burning sensations, besides other decidedly unpleasant symptoms, it is a difficult matter to get patients to take it for any length of time.

MANGO (Unofficial),—is the bark of *Mangifera indica*, an Indian tree of the nat. ord. Guttiferæ. It is supposed to be an astringent with special tonic action upon mucous membranes. It is highly recommended by its vendors for nasal catarrh, hemorrhages, and muco-purulent discharges from the intestines, uterus, vagina and bronchi. A fluid extract is sold, which may be used in doses of ♏x–ʒj.

Mango-Fruit or *Mangostren*, is the fruit of *Garcinia mangostana*, nat. ord. Guttiferæ, also from India. It is a powerful astringent, and is used for nasal catarrh, diarrhœa, dysentery, leucorrhœa, etc.

MANNA,—is the concrete, saccharine exudation of *Fraxinus Ornus*, or Flowering Ash, a tree of the nat. ord. Oleaceæ, growing in Southern Europe. Manna is produced also by several other trees, and substances resembling it are exuded by many plants. The official Manna occurs in three-edged, flattish pieces, brownish-white and glutinous externally, white and crystalline internally, odor honey-like, taste sweet, slightly bitter and faintly acrid. It contains from 40 to 90 per cent. of *Mannit*, $C_6H_{14}O_6$, or Manna-sugar, which does not undergo vinous fermentation, and is chemically allied to the alcohols and to glycerin. Manna also contains glucose, mucilage, some acrid resin, and a small quantity of the fluorescent glucoside *Fraxin*, $C_{16}H_{18}O_{10}$. There are no official preparations, but Manna itself may be given in doses of ℥j–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Manna is a mild laxative, with some tendency to produce flatulence and colic. It is usually combined with other purgatives, as Senna, Rhubarb, Magnesia, etc., to disguise the taste and increase the effect. It is a constituent of the official Infusum Sennæ Compositum. Manna may be eaten by children if of good quality, or may be readily dissolved in milk and so administered.

MARRUBIUM, Horehound,—the leaves and tops of *Marrubium vulgare*, a plant of the nat. ord. Labiatæ, native in Europe, but naturalized in America. It contains a bitter principle named *Marrubiin*, also a volatile oil, resin, tannin, lignin, etc. There are no official preparations. Dose, ʒss–j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Horehound in large doses is laxative, diuretic and diaphoretic, and in ordinary dosage it is a gentle tonic and stomachic. It is generally used in catarrhal states of the air-passages, over which it seems to have a soothing effect, and is much employed in confectionery as an ingredient in "cough-drops."

MASTICHE, Mastic,—is a concrete, resinous exudation from *Pistacia Lentiscus*, a tree of the nat. ord. Terebinthaceæ, growing in the island of Scio. It occurs in globular tears, covered with a whitish dust, of weakly resinous odor and slightly terebinthinate taste. Alcohol dissolves about 90 per cent. including the resin *Mastichic Acid*, $C_{20}H_{32}O_2$, the remainder consisting of another resin *Mastichin*, which is soluble in ether and resembles copal. There are no official preparations, but Mastic is an ingredient of the official Pil. Aloës et Mastiches (see *ante*, page 90).

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Mastic was formerly used for supposed properties analogous to those of other oleo-resins, but now its application is confined to dentistry, being employed as a temporary filling for carious teeth, a solution in ether being applied on cotton with moderate pressure, and remaining as a firm plug after evaporation of the solvent.

MATICO,—the leaves of *Artanthe elongata* (Piper angustifolium), a Peruvian shrub of the nat. ord. Piperaceæ. They are 4 to 6 inches long, and prominently venated on the under surface, the veins forming deep, angular meshes. Matico contains a crystallizable acid named *Artanthic Acid*, also resin, tannin, and a volatile oil. Its odor is aromatic, and its taste astringent, spicy and somewhat bitter.

Preparations.

Extractum Matico Fluidum,—Dose, ʒss-ij.
Tinctura Matico,—10 per cent. Dose, ℥ss–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Matico is an aromatic tonic and stimulant, also aphrodisiac, vulnerary and hemostatic. It acts, like cubebs, on the urinary passages, and is an excellent alterative stimulant to mucous membranes. It has been used with considerable success in mucous catarrhs, as gonorrhœa, leucorrhœa, chronic cystitis, etc., also in epistaxis, hemorrhoids menorrhagia, hemoptysis, hematemesis and other hemorrhages. The under surface of the leaf is so formed as to promote coagulation of blood if applied to a bleeding surface, and therefore it is a good local hemostatic for trivial cuts or wounds.

MATRICARIA, German Chamomile,—the flower-heads of *Matricaria Chamomilla*, a European annual plant of the nat. ord. Compositæ. They are small, yellow flowers, with white ray-florets, the receptacle being hollow, naked and conical, of strongly aromatic odor and bitter taste; and contain ¼th per cent. of a blue Volatile Oil (the color of which is due to *Azulen*), also a bitter extractive, tannin, etc. There are no official preparations, but the flowers may be eaten or a decoction or infusion used almost *ad libitum*.

Physiological Action and Therapeutics.

Matricaria is a mild tonic, in large doses emetic, anthelmintic and antispasmodic. It is much used in Germany, and in this country is a popular domestic remedy among German people, who use it in infusion as a diaphoretic, etc. This plant is the "Chamomilla" of the homœopaths, who find in it remarkable power over morbid impressionability of the sensory and excito-motor nerves, and administer it in various pains, aggravated at night and by warmth, clonic spasms of pregnancy, irritability of teething-children, flatulent colic, etc.

MEL, Honey,—is a saccharine secretion deposited in the honeycomb by *Apis mellifica*, the honey-bee; occurring as a pale-yellowish syrupy liquid, gradually becoming crystalline and opaque, of peculiar and heavy odor, and a very sweet, faintly acrid taste. It is a strong aqueous solution of several sugars (cane and grape sugar, levulose), with wax, pollen, coloring and odorous matters, etc. The sugars, which may be resolved into Levulose and Dextrose, amount to 70 or 80 per cent. Honey is frequently adulterated with starch and artificial glucose, which may be detected by the official tests (see U. S. Phar.). Dose indefinite.

Preparations.

Mel Despumatum, Clarified Honey,—is honey heated, skimmed and strained. is an ingredient of Confectio Rosæ, Mel Rosæ, and Massa Ferri Carbonatis. Dose indefinite.

Mel Rosæ, Honey of Rose,—Red Rose 8, Clarified Honey 92, Diluted Alcohol q. s. Dose, indefinite; generally used as a local application to the throat for its astringency and flavor, in combination with more active agents.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Honey is emollient, nutritive and laxative, in some persons giving rise to pyrosis, flatulence and colic, and in others to an eruption of urticaria, but generally constituting an agreeable article of diet. It is sometimes actually poisonous from the presence of toxic agents extracted by the bee from certain plants, in this country generally the Mountain Laurel (*Kalmia Latifolia*). Honey is chiefly used as an emollient in diseases of the throat, to relieve dryness, pain, cough and dysphagia. A mixture of Honey 8 parts to 1 each of Acetic Acid and Water is official in the Br. Phar. under the title OXYMEL, and forms a pleasant addition to gargles or a vehicle for expectorant medicines. Honey of Rose is somewhat astringent, and is used in gargles for the throat and in mouth-washes.

MELISSA, Balm,—the leaves and tops of *Melissa officinalis*, a European plant of the nat. ord. Labiatæ, growing also in America. It has a perennial root, which annually gives forth several stems from 1 to 2 feet high, with leaves about two inches long, deeply serrate, hairy and glandular, and white or yellowish flowers in axillary whorls of four or five around half the stem. It contains gum, tannin, bitter extractive, and a fragrant essential oil in very small quantity (1/8 to 1/4 per cent.). There are no official preparations.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Balm has little or no action, except to flavor hot water for use as a beverage or a mild diaphoretic.

MENISPERMUM,—is the rhizome and rootlets of *Menispermum canadense*, or Canadian Moonseed, a woody, climbing plant of the nat. ord. Menispermaceæ, native of the eastern U. S., having peltate three- to seven-lobed leaves, greenish-yellow flowers in small clusters, and a kidney-shaped fruit. The rhizome is several feet long, 1/4 inch thick, finely wrinkled, rootlets numerous, taste bitter. It contains starch, Berberine, and a white alkaloid which is soluble in alcohol and in ether. There are no official preparations. Dose, gr. v–xx, in infusion.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Menispermum is reputed to have tonic properties, and is used in some of the Southern States in domestic practice as a substitute for Sarsaparilla in scrofulous conditions. Little is known about it of a definite character.

MENTHA PIPERITA, Peppermint,—the leaves and tops of *Mentha piperita*, a perennial herbaceous plant, of the nat. ord. Labiatæ, native of Britain, but largely cultivated elsewhere. The leaves are about 2 inches long, ovate-lanceolate, sharply serrate, of aromatic odor, and pungent, cooling taste. They contain 1 to 1¼ per cent. of a Volatile Oil which is official, and a little tannin.

Preparations.

Oleum Menthæ Piperitæ, Oil of Peppermint,—is the volatile oil distilled from the fresh herb; a colorless or pale yellow fluid of sp. gr. about 0.900, having the odor of peppermint, a strongly aromatic taste followed by a cold sensation when air is drawn into the mouth. It consists of a liquid terpene, and a stearoptene named *Menthol* or *Peppermint Camphor*, $C_{10}H_{20}O$. Dose, ♏j-v.

Aqua Menthæ Piperitæ, Peppermint Water,—has of the oil 2 parts in 1000 of Distilled Water, Dose, indefinite.

Spiritus Menthæ Piperitæ, Essence of Peppermint,—is an alcoholic solution containing 10 per cent. of the Oil and 1 per cent. of the powdered herb. Is an ingredient of Mistura Rhei et Sodæ. Dose, ♏x-xxx.

Trochisci Menthæ Piperitæ, Peppermint Troches,—each troche contains gr. $\frac{15}{100}$ of the Oil, with Sugar and Mucilage of Tragacanth. Dose. indefinite.

Menthol, Peppermint Camphor, $C_{10}H_{20}O$ (Unofficial),—is a stearoptene deposited by Oil of Peppermint on exposure to cold. Used externally.

PHYSIOLOGICAL ACTION.

Peppermint is an aromatic stimulant, carminative and antispasmodic. The oil possesses these qualities in greater degree and is also a local anodyne and anæsthetic when applied locally, especially if its evaporation be prevented. The Chinese oil is particularly anodyne and contains a large quantity of Menthol. The oil is best administered internally in its alcoholic solution, the spirit. Menthol is antiseptic and locally anæsthetic, but not corrosive, and acts also as a vascular stimulant when applied to the surface.

THERAPEUTICS.

PEPPERMINT is used internally for the relief of nausea and colic, and to expel flatus by its local stimulant and after sedative action on the bowels. It is an agreeable corrigent for combination with purgatives to prevent griping, and efficiently covers the taste of many nauseous substances. The spirit is the best form for internal use. The oil is used locally to relieve the pain of superficial neuralgia, a cloth being wet with it, laid along the course of the affected nerve, and covered with oiled silk to restrain evaporation. It is also efficient in rheumatism as an anodyne counterirritant. MENTHOL is highly vaunted as an external application in various neuralgiæ, sciatica, pleurodynia, toothache, etc. For neuralgia it is used in saturated alcoholic solution painted over the affected nerve. For toothache a crystal introduced into the carious cavity is promptly anodyne. As an antiseptic it promises well as an application in parasitic skin diseases. As the Chinese have used their Oil of Peppermint for ages as an application in neuralgiæ, and as this oil contains a large quantity of Menthol, the latter preparation will probably prove a very efficient agent in these affections if the cupidity of the manufacturers will allow of its being obtained pure.

MENTHA, VIRIDIS, Spearmint,—the leaves and tops of *Men- ha viridis*, the "mint" of the kitchen garden, a plant of the nat. ord. abiatæ, indigenous to England, but naturalized in many countries. Its onstituents and properties are identical with those of peppermint, but its dor and taste differ therefrom.

Preparations.

Oleum Menthæ Viridis, Oil of Spearmint,—is the Volatile Oil distilled from the plant. ose, ♏ij–v.

Aqua Menthæ Viridis, Spearmint Water,—has 2 parts of the Oil in 1000 of Distilled ater. Dose, indefinite.

Spiritus Menthæ Viridis, Essence of Spearmint,—is an alcoholic solution containing 0 per cent. of the Oil and 1 per cent. of the powdered herb. Dose, ♏x–xl.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Spearmint corresponds in action to Peppermint, but is generally less owerful. It is usefully employed to correct flatulence and to relieve olic, and makes an agreeable flavoring for many mixtures.

MEZEREUM, Mezereon,—is the bark of *Daphne Mezereum* and f other species of Daphne, plants of the nat. ord. Thymelaceæ, growing n mountainous districts of Europe and Asia, and cultivated as a garden hrub in Britain. The bark occurs in long, thin bands, rolled into disks, rownish-yellow on the surface, whitish and silky within, inodorous, very crid. It contains an inert, fixed oil, an inactive glucoside *Daphnin*, and n acrid *Resin*, which is the anhydride of a resinous acid named *Meze- einic Acid*. Mezereum is an ingredient of the compound decoction and he compound fluid extract of Sarsaparilla. Dose, gr. j–x.

Preparations.

Extractum Mezerei,—is only used to prepare the Linimentum Sinapis Compositum.

Extractum Mezerei Fluidum,—is too acrid for internal use, but from it is prepared the llowing.

Unguentum Mezerei,—has of the preceding 25 parts, Lard 80, Yellow Wax 12. An ritant ointment.

PHYSIOLOGICAL ACTION.

Mezereon is a sialogogue, and an intensely acrid, irritant poison, pro- ucing violent vomiting, purging, nephritis and gastro-enteritis. In small oses it is laxative and diuretic, and has had considerable reputation as n alterative. Externally the recent bark is a powerful local irritant, peedily producing vesication.

THERAPEUTICS.

Mezereon is rarely used internally by itself, but is employed in mix- tures with Sarsaparilla, etc., as an alterative in syphilis, rheumatism and some skin diseases of chronic type, but with doubtful efficacy. It has been used with good effect in toothache and as a masticatory in paralysis of the tongue. Its principal use is as a local irritant to keep up the discharge from issues or blisters, and to stimulate indolent ulcers.

MORRHUÆ OLEUM, Cod-liver Oil,—is a fixed oil obtained from the fresh livers of *Gadus Morrhua* (Cod-fish) or other species of *Gadus*. It is a colorless or pale yellow, thin, oily liquid, of slightly fishy odor and taste, and faintly acid reaction, soluble in ether; sp. gr. 0.920 to 0.925. It consists chiefly of *Olein* and *Margarin*, with a peculiar principle named *Gaduin*, also Trimethylamine, free fatty Acids (oleic, palmitic, stearic), traces of Iodine, Bromine, Sulphuric and Phosphoric Acids, the ordinary inorganic salts of animal tissues and products, and perhaps bile constituents. When saponified it does not yield Glycerin but Oxide of Propyl. Three kinds or varieties are found in the market, the pale, the light-brown and the dark. The pale is the official oil and the purest. Dose, ʒj–ij, on a full stomach, increased as assimilated.

Unofficial Preparation.

Glyconin Emulsion of Cod-Liver Oil,—Ol. Morrhuæ ℥iv, Glyceritum Vitelli ℥i[illegible]x, Aromatic Spirit of Ammonia ʒj, Sherry Wine ℥ij, Diluted Phosphoric Acid ʒiv, Essence of Bitter Almond (ʒj of the Volatile Oil in Oss Alcohol) ʒij. The Cod-liver Oil is to be added to the Glyconin very slowly with brisk stirring, and the other ingredients added in the order named.

PHYSIOLOGICAL ACTION.

The action of Cod-liver Oil is that of any other fat, except that it is more easily assimilated than any member of the class. Fats in small quantity are necessary for the digestion of nitrogenous food, and form the molecular basis of the chyle, being prepared for absorption by the pancreatic juice and the bile, especially by the latter. Fat is an essential constituent of the products of tissue formation, whether physiological or pathological, and is the principal material concerned in the production of force. After oxidation it is excreted as carbonic acid and water. Locally applied fats reduce the body temperature.

Cod-liver Oil is the most easily digestible of fats, penetrating animal membranes with comparative ease after being emulsified by the pancreatic and biliary secretions, hence entering the lacteal vessels readily and appearing to bring with it the oily and nitrogenous elements of the food. The result is facilitation of the digestive process, increase of the red blood-corpuscles and of the body-weight, and stimulation of healthy cell-formation throughout the tissues. The properties of this oil have been ascribed to its contained biliary constituents, Iodine, free Oleic Acid, etc., but no satisfactory explanation has yet been offered for the difference between its action and that of other animal or vegetable oils.

THERAPEUTICS.

The use of Cod-liver Oil is that of a nutrient wholly, this action being nost marked in wasting diseases. In high febrile states or catarrhal con- litions of the gastro-intestinal tract its use is contraindicated, but in hthisis a slight degree of fever will not interfere with its beneficial em- loyment. It is found to be of most value in chronic forms of phthisis, hronic bronchitis and emphysema, chronic rheumatic disorders, atheroma f the arteries, strumous skin diseases and diarrhœa, syphilodermata, neu- algia, chorea and epilepsy. In many disorders referable to exhaustion r debility of the nervous centres it is of great value as a nerve tonic, and n convalescence from acute diseases it is of marked benefit. It should lways be considered as a supplementary food, and if its use endangers the ppetite for other food it should be abandoned.

The administration of this valuable agent is a serious matter, as many atients cannot overcome their repugnance to its taste and smell. Various mulsions are on the market, but they are objectionable because in no case o they conceal the taste, and the efficacy of the oil is seriously impaired y the processes used in their preparation. Moreover, the temptation is ery great to employ an inferior grade of the oil or to adulterate it with ther fish-oils in the manufacture of these preparations, and when the ommercial spirit of gain is remembered one can never be sure of the uality of the oil so prepared. The oil itself is the best form for use, in nall doses, say a teaspoonful thrice daily for an adult, after meals, in black ffee, beer or lemon-juice. The essential Oil of Eucalyptus in the pro- rtion of 1 part to 100 of cod-liver oil will effectually extinguish the lor and taste to many persons. Alkaline stomachics given before meals, e oil after, and a teaspoonful of the "Liquor Pancreaticus" given half hour afterwards, would be a good routine in most cases, the latter agent eventing the fishy eructations which often give so much trouble. Ex- mporaneous emulsions may be prepared with Glycerite of Yolk of Egg e *ante*, page 282), White of Egg, Mucilage of Tragacanth, Extract of alt, or any syrup, and flavored with Lemon, Cinnamon or Bitter mond. The addition of ♏iv of Ether to each ℥ of the oil promotes digestion by stimulating the pancreatic secretion, and enables a patient take it with whom it had previously disagreed.

Inunction by Cod-liver Oil is a method of value in the wasting diseases children. A tablespoonful may be rubbed into the skin of the abdo- en twice a day, and covered with a flannel binder with oiled silk or ackintosh-cloth outside. It readily passes through the skin and is ab- rbed, producing valuable and lasting results.

MOSCHUS, Musk,—is the dried secretion from the preputial llicles of *Moschus moschiferus* (the Musk Deer), an animal inhabiting e mountainous regions of Central Asia. It occurs in irregular, unctuous rains, of a reddish-brown color, peculiar and penetrating odor and bitterish taste, contained in oval sacs about 2 inches in diameter, membranous on one side, hairy on the other. About 10 per cent. is soluble in alcohol, 50 per cent. in water. Chinese Musk in the pods or sacs is the most valuable, but all varieties are much adulterated, the price of the drug being very high. The odor is destroyed by drying, but returns again on the addition of moisture. Trituration with Camphor or Hydrocyanic Acid also destroys it. The odorous principle has not been isolated, it is probably a product of decomposition which is constantly being formed. The constituents of Musk are a bitter resinous substance, ammonia, fat, cholesterin, etc. Dose, gr. ij–x.

Preparation.

Tinctura Moschi,—10 per cent. Dose, ʒss–ʒjss.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Musk is a very diffusible stimulant, acting directly on the nervous and circulatory systems, but without much energy. It is also an antispasmodic, and is used with benefit in general prostration of the system with nervous agitation or irregular muscular action. It has been used with advantage in laryngismus stridulus, insomnia, the collapse of typhoid and typhus fevers, spasmodic affections of the stomach, obstinate hiccough and convulsions of children due to intestinal spasms. The pure Musk is very difficult to obtain, and its high price makes it an extremely expensive medicine, so that it is seldom used except as a perfume.

MYRCIÆ OLEUM, Oil of Myrcia, Oil of Bay,—is a volatile oil distilled from the leaves of *Myrcia acris*, or Bayberry, a tree of the nat. ord. Myrtaceæ, native of the West Indian Islands. It is a dark-brown liquid, of aromatic odor, pungent taste, slightly acid reaction, and soluble in an equal weight of alcohol. Sp. gr. about 1.040. It contains a hydrocarbon and *Eugenic Acid*. Used as a perfume.

Preparation.

Spiritus Myrciæ, Spirit of Myrciæ, Bay Rum,—contains in 1800 parts Oil of Myrcia 16, Oil of Orange-peel 1, Oil of Pimento 1, Alcohol 1000, Water 782 parts, filtered through Carbonate of Magnesium. Used as a wash or perfume.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The Oil of Bay is an agreeable perfume used to prepare bay-rum and in other cosmetic preparations. The spirit, known as "Bay-rum," is used principally as a refreshing perfume, and is thought to relieve headache, faintness, etc., by application to the forehead or to the nostrils.

MYRISTICA, Nutmeg,—is the kernel of the seed of *Myristica fragrans* deprived of its testa. The nutmeg tree is cultivated extensively

ast and West India Islands, belongs to the nat. ord. Myristicaceæ,
native of the Banda Islands in the Malayan Archipelago. The
is about an inch long, oval or roundish-ovate, reticulately fur-
internally pale-brown or grayish-red with dark-brown veins, hav-
rongly aromatic odor and a somewhat bitter taste. It contains 4
cent. of the official Volatile Oil, and 30 per cent. of a concrete
nmonly called "Oil of Mace," which is a compound of fluid
les of Oleic and Butyric Acids, and the solid glyceride of *Myristic*
me resin and volatile oil. Dose, gr. v–xx.

is, Mace,—is the arillus or fleshy covering of the fruit of *Myristica*
s, the Nutmeg-tree. It occurs in narrow bands about an inch
anched and lobed, of brownish-orange color, fragrant odor, warm
matic taste. It yields a fixed oil by pressure and a volatile oil by
ion, the latter being probably identical with Oil of Nutmeg.

Preparations.

Myristicæ, Oil of Nutmeg,—is the volatile oil, and consists chiefly of a terpene
ygenated oil *Myristicol*. It is colorless or pale-yellow, of hot, spicy taste and
action, and is soluble in alcohol. Dose, ♏j-v.

Myristicæ, Spirit or Essence of Nutmeg,—is a 3 per cent. solution of the oil
. Dose, ʒj-ij.

g is an ingredient of Acetum Opii, Pulvis Aromaticus, Tr. Lavandulæ Co., Syr.
mat., Trochisci Cretæ, Trochisci Magnesiæ and Trochisci Sodii Bicarbonatis.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

EG is an aromatic stomachic of agreeable flavor. In small doses
lates the production of gastric juice, and thus promotes digestion
reases appetite. It also relieves intestinal spasm and flatulence.
doses it is powerfully narcotic, acting directly on the cerebrum,
ducing stupor and delirium. It is used chiefly for flavoring pur-
nd generally in substance, grated as required, but has been
d as a carminative, anodyne and astringent in diarrhœas and
y, as well as to relieve nausea and vomiting. The Volatile Oil is
ly rubefacient when used externally, and has narcotic powers if
ernally in sufficient quantity. It is occasionally employed as an
stimulant in paralysis and chronic rheumatism.

is stimulant, carminative and aromatic. It is used solely as a
condiment. Dose, gr. v–xx.

RHA, Myrrh,—is a gum resin obtained from *Balsamodendron*
, an Arabian tree of the nat. ord. Burseraceæ, collecting spon-
y upon the bark, and occurring in roundish tears, having a waxy
a balsamic odor, and an acrid and bitter taste. Triturated with
yields a brownish-yellow emulsion; with alcohol it yields a
-yellow tincture which turns purple on the addition of nitric

acid. It contains 60 per cent. of gum, 35 per cent. of *Myrrhin* a resin, and about 2 per cent. of an oxygenated ethereal oil *Myrrhol*, $C_{10}H_{11}O$. Dose, gr. x.–xxx.

Preparations.

Tinctura Myrrhæ,—20 per cent. Dose, ℳ x–xxx.

Myrrh is also contained in Mist. Ferri Co., Pil. Aloës et Myrrhæ, Pil. Ferri Co., Pil. Galbani Co., Pil. Rhei Co., and Tr. Aloës et Myrrhæ.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Myrrh in small doses stimulates the gastro-intestinal mucous membrane; in large doses it is an irritant thereunto, producing vomiting and purging. It quickens the action of the heart and diminishes the bronchial secretion. It is a uterine stimulant and emmenagogue, a stimulant expectorant, and is thought to increase the number of leucocytes in the blood. Locally it is stimulant and disinfectant to mucous membranes and ulcerated surfaces.

Myrrh is used internally in the various combinations noted above for anæmia and amenorrhœa, bronchial catarrh, etc. It has been supposed to diminish excessive secretion from the mucous surfaces of the uterus, vagina, bladder, and bronchi, and to have an especially beneficial influence on chronic pharyngitis. Locally, the tincture has a good tonic action on diseased mucous surfaces, and is applied to spongy gums, relaxed throat, aphthous patches and unhealthy ulcers. The tincture diluted with water makes an excellent disinfectant and stimulant gargle in ulcerated sore-throat. Myrrh has long been used as an ingredient of dentifrices.

NAPHTHALINE, $C_{10}H_8$ (Unofficial),—is one of the many products of the distillation of coal-tar, and is one of the benzene derivatives, being formed by the union of two benzene groups in an overlapping ring. (See *ante*, page 179.) It occurs as colorless, micaceous crystals, obtained from the destructive distillation of coal-tar, having a peculiar smell,—insoluble in water, dilute acids or alkalies, and but sparingly so in alcohol.

The dose of Naphthaline is from gr. ij–gr. viij, up to gr. lxxx per diem for adults;—and for children gr. j–gr. iij, every 3 hours. Being quite insoluble in water it must be given in emulsion, or as a powder with sugar in wafers or capsules. It is best flavored with oil of bergamot.

DERIVATIVES.

From Naphthaline we have these unofficial substances—

NAPHTHOL, $C_{10}H_7OH$, Beta- or Iso-naphthol,—one of several kinds of Naphthol: is sparingly soluble even in hot water, but is soluble in alcohol, ether, chloroform, olive oil and vaseline. Used as ointment, 1 to 5 for adults, but for children not over 2 per cent.

HYDRONAPHTHOL, $C_{16}H_7OH$,—glistening, micaceous scales, sparingly soluble in water, freely soluble in alcohol, oils, etc. Used as an antiseptic, and in ointment or powder locally, diluted with oxide of zinc, 1 to 50.

PHYSIOLOGICAL ACTIONS.

NAPHTHALINE is destructive to all forms of low life, and hence is antiseptic in a high degree, but must be intimately mixed with the substances upon which it is to act. Internally it is a stimulant expectorant of decided power, and disinfects the contents of the intestinal canal. Being so sparingly soluble, but little of it is absorbed, and hence it does no injury to the organism. What is taken up by the blood is excreted by the urine, partly unchanged, partly as naphthol and perhaps some as phenol. NAPHTHOL is more easily absorbed, and causes vomiting, hematuria, convulsions, and unconsciousness. HYDRONAPHTHOL is a powerful and non-irritating antiseptic, non-poisonous, non-corrosive, freely soluble in alcohol, glycerin, fixed oils, etc., in cold water, 1 to 2000; and in hot water 1 to 100, precipitating as the water cools, but leaving a saturated solution of 1 to 1000, which is perfectly inhibitive of the germs of putrefaction in all putrescible fluids (Levis.) The claims made for it are that it is 12 times as effective as carbolic acid, 30 times as potent as salicylic acid, 60 times as efficient as boric acid, 600 times as antiseptic as alcohol, and that it is entitled, as a true antiseptic, to stand next to mercuric chloride in the comparative tables (Levis.)

THERAPEUTICS.

NAPHTHALINE is employed as an antiseptic for the intestinal canal in typhoid fever, diarrhœa, both acute and chronic, tubercular diarrhœa, etc. It renders the urine aseptic and may be employed in vesical catarrh. It is also used internally for humoral asthma, verminous affections, and the chronic pulmonary catarrh of the aged. Locally, it has high value as an antiseptic, for indolent ulcers, sloughing wounds, open cancers, pus cavities, etc. Painted over organic remains it effectually prevents the ravages of insects. NAPHTHOL is employed like tar for a therapeutic action upon the skin, in hyperidrosis, scabies, eczema and local sweating, in ½ to 5 per cent. alcoholic solution, or as a 10 per cent. ointment. HYDRONAPHTHOL is also highly esteemed for antiseptic purposes generally, by those who have used it, and is of benefit as an external application in many skin diseases. Its non-toxic and non-irritant qualities render it the most useful and most generally available of the three.

NUX VOMICA,—is the seed of *Strychnos Nux-vomica*, an East India tree of the nat. ord. Loganiaceæ, having white, funnel-shaped flowers, and a fruit about the size of an orange, with many seeds in a juicy pulp. The seeds are flattened and nearly circular, about one inch in diameter, ashy-gray in color, covered with short, satiny hairs, internally translucent, tough and horny, with a large cavity, inodorous, taste intensely bitter. It contains two alkaloids, *Strychnine*, 0.2 to 0.5 per cent., and *Brucine*, 0.1 to 1.0 per cent., with a crystalline acid, *Igasuric* or *Strychnic Acid*, and a yellow coloring matter, a concrete oil, gum, starch, wax, earthy phosphates, etc. A third alkaloid, *Igasurine*, is claimed to exist by some authorities and is denied by others.

Preparations.

Abstractum Nucis Vomicæ,—Dose, gr. ½, gradually increased.

Extractum Nucis Vomicæ,—Dose, gr. ⅛–j.

Extractum Nucis Vomicæ Fluidum,—Dose, ♏j–v.

Tinctura Nucis Vomicæ,—20 per cent. Dose, ♏v–xx.

Strychnina, Strychnine, $C_{21}H_{22}N_2O_2$,—is an alkaloid prepared from Nux Vomica, Ignatia, and other plants of the order Loganiaceæ; crystalline, intensely bitter even in 1 to 700,000 solution, of alkaline reaction, soluble in 6 of chloroform, 110 of alcohol, 6700 of water, almost insoluble in ether. It is a constituent of Ferri et Strychninæ Citras, and of Syrupus Ferri Quininæ et Strychninæ Phosphatum. Dose, gr. $\frac{1}{60}$–$\frac{1}{20}$.

Strychninæ Sulphas, Sulphate of Strychnine $(C_{21}H_{22}N_2O_2)_2H_2SO_4.7H_2O$,—crystalline, efflorescent, odorless, of intensely bitter taste even in 1 to 700,000 solution, neutral reaction, soluble in 10 of water and 60 of alcohol at 59° F. Dose, gr. $\frac{1}{60}$–$\frac{1}{20}$.

Brucina, Brucine, $C_{23}H_{26}N_2O_4$ (Unofficial),—colorless prisms, pearly flakes, or masses, soluble in water, less so in alcohol; as compared with Strychnine it is less bitter, 12 times weaker and 3 times slower physiologically. Is thought to be a compound of strychnine and resin, corresponding with the other alkaloid both physiologically and therapeutically. Is seldom used. Dose, gr. $\frac{1}{10}$–$\frac{1}{5}$.

PHYSIOLOGICAL ACTION.

The actions of Nux Vomica are those of its alkaloid Strychnine. In small doses, it acts as a bitter tonic, stimulates respiration, secretion, appetite and digestion, and sharpens the vision. It increases peristalsis, stimulates both the motor and the inhibitory apparatus of the heart, and raises the arterial tension by stimulating the vaso-motor centres, thus contracting the arterioles, though by full doses the arterioles are relaxed. By a full dose (Strychnine, gr. $\frac{1}{16}$), the pupils are dilated, the limbs jerk, respiration becomes spasmodic and the lower jaw stiff, a sensation of cerebral tension, sudden shuddering and anxiety follow, the face wearing an unmeaning smile. A toxic dose (Strychnine gr. ½ for an adult) on an empty stomach quickly produces heightened reflexes; tonic spasms, especially of the extensor muscles, on the least irritation quickly succeed each other with intervals of repose, resulting after two or three hours at most in death by asphyxia, from tetanic fixation of the muscles of respiration, consciousness being preserved until carbonic acid narcosis set in.

Strychnine exalts all the functions of the spinal cord,—reflex, motor, vaso-motor and sensory,—the latter being the least affected. It has a selective action on the large multipolar ganglia in the anterior columns, which it first stimulates and then paralyzes by over-stimulation. A large dose destroys the spinal functions as by one blow. It does not affect the brain directly. Thebaine, one of the alkaloids of Opium, is a powerful spinal exaltant and acts very similarly to Strychnine.

From the spasms of tetanus those of Strychnine may be differentiated by their intermittency, the former being constant. Moreover, the meaningness smile, the less marked trismus, the absence of a wound, and the rapid course of the symptoms, all point to the action of Nux vomica.

The excretion of Strychnine takes place very slowly, and by the urinary, salivary and cutaneous channels. Rapidly absorbed but very slowly excreted, it accumulates in the system if even a small dose be frequently repeated.

On the eye Strychnine has marked effects, augmenting the excitability of the retinal elements, increasing the sharpness of vision and enlarging the visual field.

Antagonists and Incompatibles.

The antidote is Tannic Acid, to form the very insoluble tannate, or a soluble salt of Iodine. Then emetics or the stomach-pump, followed by perfect quiet which is very important. Antagonists are Chloral, Tobacco, Chloroform inhalations or Ether, and Potassium Bromide, the latter being almost too slow of action to be of much use in practice. Chamomile oil should antagonize the reflex excitability. The bladder must be frequently evacuated to prevent re-absorption of the poison, and artificial respiration maintained as necessary.

Incompatibles are Bromides, Chlorides and Iodides in the same solution, the Strychnine being precipitated as hydrobromate, hydriodate, etc.

THERAPEUTICS.

NUX VOMICA and its chief alkaloid are used as a stomachic tonic and as a respiratory, cardiac, muscular and nervous stimulant. As the quantity of Strychnine in Nux Vomica varies greatly, it is best to use the alkaloid when its physiological action is desired, as more definite dosage may thus be obtained. The tincture in 5-drop doses is excellent in atonic dyspepsia and gastric catarrh, especially in drunkards, and in constipation from atony of the bowels it may be given in 10-drop doses with good results, not as a purgative but to increase peristalsis. The extract is much used in laxative pills for habitual constipation. In the vomiting of pregnancy the tincture is frequently an efficient remedy, and in the vomiting of phthisis Strychnine is one of the very best agents. Nux vomica is a very useful remedy in many nervous derangements, such as periodical coughs, especially night-coughs, irregular cardiac action and over-action of the heart, in asthma, the nervous movements of pregnancy, hypochondriasis, etc. Its undoubted action upon the pneumogastric makes it very valuable in all sorts of coughs, whether from bronchitis, pneumonia, phthisis or emphysema. Epidemic diarrhœas and dysentery are well treated by Strychnine, and in anæmia and chlorosis it is invaluable, combined with Iron and Quinine. In neuralgiæ, especially the visceral, tetanus of the idiopathic type, cardiac failure from any cause, and in intermittents as an adjunct to Quinine, it is always a useful drug. Local paralyses of various forms are well treated by injecting Strychnine hypodermically into the affected muscles, and diphtheritic paralyses are almost invariably cured by it. Strychnine is an excellent remedy in hemiplegia when degeneration has not yet set in, and when the paralyzed muscles are completely relaxed; but it is of no avail in recent cases, nor when the muscles have lost electrical contractility. In amaurosis from lead, tobacco or alcohol, it has proved remarkably useful, and in the dyspnœa of pulmonary affections it may be employed with benefit as a respiratory stimulant. Strychnine is a physiological antagonist to Chloral, Physostigmine and Morphine, and may be carefully administered in poisoning by these substances while the ordinary methods are also employed.

In many eye diseases Strychnine is injected into the tissues about the temple with great benefit, especially in amblyopia due to functional disorder of the retina without lesions, and in atrophy of the optic nerve. Used in the same manner it is highly recommended in infra-orbital neuralgia, and in other neuralgiæ characterized by debility and anæmia.

NYMPHÆA ODORATA, Sweet-scented Water-lily, (Unofficial),—is a well-known American plant of the nat. ord. Nymphæaceæ, the root of which is very bitter and highly astringent, containing much Gallic and Tannic Acids, to which its actions and uses are due. A decoction of ℥j to the pint may be used in doses of ℥ss–j, or a fluid extract in doses of ʒss–j. For the physiological actions and therapeutics of this vegetable astringent see Tannic Acid, *ante* page 74.

OLIVÆ OLEUM, Olive Oil, Sweet Oil, Salad Oil,—is a fixed oil expressed from the ripe fruit of *Olea europæa*, the olive tree (nat. ord. Oleaceæ), which is cultivated in southern Europe, California and Australia. It is a pale-yellow or greenish-yellow, oily liquid, of nutty, oleaginous taste, and neutral reaction, sparingly soluble in alcohol but readily soluble in ether. Sp. gr. about 0.916.

Olive Oil consists of 72 per cent. of *Olein* (a fluid oil) and 28 per cent. of *Palmitin* (a solid oil or stearoptene), which are compounds of the base *Glyceryl*, C_3H_5 with *Oleic Acid*, $C_{19}H_{34}O_2$, and *Palmitic Acid*, $C_{17}H_{31}O_2$, respectively. It is frequently adulterated with cheaper fixed oils, especially poppy oil, lard oil, and cotton-seed oil, quantities of the latter being exported every year to Italy, whence it is returned to us as Olive Oil under a French label. (See Gossypium, *ante*, page 229.) It is an ingredient of Ceratum Camphoræ, Ceratum Cetacei, Emplastrum Plumbi and Unguentum Diachylon, and is the source of the official Soap. Dose, ℥ss–j.

Physiological Action.

Externally used Olive Oil is a good protective from the air, and renders the skin soft and flexible. If rubbed into the integument it is absorbed by the lymphatics and is directly nutritive in effect. Internally it is also nutritious and mildly laxative, and in quantity acts as a protective to the mucous membrane against acrid or poisonous substances. Like other oils it is partly emulsified, partly saponified in the intestines, its glycerin being set free and its fatty acids combining with the free alkalies to form soap, which with the emulsion forms the molecular basis of the chyle, entering the blood through the lacteals and being finally oxidized into carbonic acid and water, though an excess will appear unchanged in the urine. Oils are therefore a food within certain limits, increase the fat of the tissues, furnish force, and save the waste of nitrogenous tissue, but are unable of themselves to support life.

THERAPEUTICS.

Olive Oil possesses no very marked therapeutic power above any other bland oil or fat. It is a good laxative for infants administered internally, and may be used as an enema followed by warm water. Its chief employment is as a local application. Applied to burns and acute inflammations of the skin it is an excellent protective, coating the surface and excluding the air; and as an ingredient of liniments it acts as a diluent for more active agents. It is used to facilitate friction over enlarged or stiff joints, and in the desquamative stage of scarlet fever is a very useful and grateful application. As an antidote in corrosive poisoning it acts mechanically by protecting the mucous membrane of the stomach and preventing absorption. In pharmacy its bland, unirritating qualities have procured its common employment as an ingredient of liniments, plasters, ointments and cerates, but the foreign article is so frequently adulterated with inferior oils that Cotton-seed Oil is now directed in its place in many official preparations.

OPIUM,—is the concrete, milky exudation, obtained in Asia Minor by incising the unripe capsules of the White Poppy, *Papaver somniferum*, an annual herb of the nat. ord. Papaveraceæ, indigenous to Western Asia but cultivated extensively elsewhere. Its capsules are globular, two or three inches in diameter, and are crowned by a sessile, stellate stigma, which distinguishes them from Colocynth and Bael fruits. Opium occurs in irregular lumps or cakes, of dark-brown color, sharp, narcotic odor, and bitter taste; and in its normal, moist condition should yield not less than 9 per cent. of Morphine when assayed by the process official in the Pharmacopœia.

COMPOSITION OF OPIUM.

Opium contains 17 alkaloids, 2 neutral substances and 2 organic acids, together with sugar, gum, resin, pectin, extractives, odorous principles, water and other constituents of plants. Its most important alkaloids are the following:

Morphine, $C_{17}H_{19}NO_3$, 5 to 20 per cent.,—the principal alkaloid, occurring in the drug in the form of the tribasic meconate. Its properties are anodyne, hypnotic and narcotic. From it by a process of dehydration by heat and hydrochloric acid is prepared the artificial alkaloid *Apomorphine*, a powerful emetic. (See *ante*, page 107.)

Codeine, $C_{18}H_{21}NO_3$, 0.3 to 0.5 per cent.,—is calmâtive and when pure a not very active alkaloid, but is frequently contaminated with other alkaloids. *Apomorphine* may be prepared also from it.

Narcotine, $C_{22}H_{23}NO_7$, 2 to 10 per cent.,—is antiperiodic and a tetanizer, but wholly devoid of narcotic properties.

Thebaine or Paramorphine, $C_{19}H_{21}NO_3$, 0.15 to 0.20 per cent.,—is a powerful spinal exaltant and tetanizer, resembling Strychnine in its action.

Narceine, $C_{23}H_{29}NO_9$, 0.02 per cent.,—closely resembles Morphine in action, but is probably more hypnotic, and is not followed by many of the disagreeable after-effects of Morphine. It is extremely difficult to obtain this alkaloid pure.

Papaverine, $C_{21}H_{21}NO_4$, 1 per cent.,—is reported inert on man by some observers, narcotic and convulsant by others.

Other Alkaloids at present acknowledged are—Cryptopine, Pseudomorphine, Protopine, Hydrocotarnine, Laudanine, Codamine, Rhœadine, Meconidine, Laudanosine, Lanthopine and Gnoscopine. Many of them are probably to be regarded as derivatives from Morphine.

Besides the above-named alkaloids the most important of the constituents of Opium are the following acids and neutral principles, viz.:

Acids are—*Meconic Acid*, $C_7H_4O_7$, 4 per cent., and *Lactic Acid*, $C_3H_6O_3$, 1¼ per cent., which exist in combination with the alkaloids as meconates, bimeconates, etc. The second acid is generally called *Thebolactic*, but has been recently shown to be identical with lactic acid.

Neutral Principles are—*Meconin*, $C_{10}H_{10}O_4$, 0.01 per cent., white, crystalline, neutral, but very acrid; *Meconoiosin*, $C_8H_{10}O_2$, also crystalline, and *Porphyroxin*, which is now said not to be a proximate principle but a very complex combination of several alkaloids.

Smyrna, Turkey or Levant Opium is the best grade. Constantinople Opium is of uncertain quality, while of the other varieties in the market Egyptian, Persian and Indian samples are those most frequently met with. All varieties are more or less adulterated with fruits and leaves of other plants, starch, pitch, clay, wax, gum, liquorice, etc.

Preparations of Opium.

Pulvis Opii, Powdered Opium,—is Opium dried at a temperature not exceeding 185° F., and reduced to a moderately fine powder. It should contain not less than 12 nor more than 16 per cent. of Morphine when assayed by the official process. Dose, gr. ss–iij, an average adult dose being about one grain.

Opium Denarcotisatum, Denarcotized Opium,—is powdered Opium freed from the constituents which are soluble in ether, namely—the odorous matters and Narcotine, which are supposed to cause the unpleasant after-effects of Opium. It should yield 14 per cent. of Morphine, and therefore is by no means "denarcotized," but is a good preparation, being a purified Opium having a fixed Morphine standard. Dose, gr. ss–iij, an average adult dose being about one grain. The proprietary article named *Svapnia* is a similar preparation.

Extractum Opii,—an aqueous extract containing Glycerin to keep it soft, and freed from some disturbing principles which are insoluble in water. Dose, gr. ¼–j.

Pilulæ Opii,—each pill contains gr. j of powdered Opium with gr. ¼ of Soap. Dose, j–iij.

Tinctura Opii,—Laudanum,—Opium-strength 10 per cent., average Morphine-strength gr. vj, (equaling gr. vijss of the Sulphate) to the fl ℥. Has about gr. xliv of Opium to the ℥. ♏xj (gtt. xxij) = gr. j of Opium or gr. $\frac{1}{8}$ of Morphine Sulphate. Sixty minims yield on the average 120 drops. Dose, ♏v–xx as per effect required.

Tinctura Opii Deodorata, Deodorized Tincture of Opium,—an aqueous extract shaken with ether, which being separated the residue is dissolved in water, and enough alcohol is added to preserve it. An excellent liquid preparation, being freed from all the noxious and useless ingredients soluble in alcohol and ether. *McMunn's Elixir* is a similar preparation, so also is a recent nostrum named *Papine*. Opium-strength 10 per cent., average Morphine-strength gr. vj to the fl ℥. Dose, as Tinct. Opii. Drops of this preparation nearly equal minims.

Vinum Opii, Wine of Opium, Sydenham's Laudanum,—Opium-strength 10 per cent., with the aromatics Cinnamon and Cloves of each 1 per cent., in Stronger White Wine. A vinous tincture decreased somewhat in strength from the wine of 1870. Dose, as Tinct. Opii. Drops of this preparation are larger than those of the tincture.

Acetum Opii, Vinegar of Opium, Black Drop,—Opium-strength 10 per cent., with Nutmeg and Sugar in Dilute Acetic Acid. Is now ⅓ weaker than formerly, having the same strength and dose as Tinct. Opii.

Tinctura Opii Camphorata, Camphorated Tincture, Paregoric,—has of Powdered Opium 4, Benzoic Acid 4, Camphor 4, Oil of Anise 4, Glycerin 40, Diluted Alcohol q. s. ad 1000 parts. ℥ss contains nearly one grain of powdered Opium, and is about $\frac{1}{20}$th the strength of Laudanum. Dose, for an infant gtt. v–xx, for an adult ʒj–iv.

[NOTE.—According to the U. S. Pharmacopœia of 1880 the official dried Opium should contain 12 to 16 per cent. of Morphine instead of 10 per cent. as required by the Pharmacopœia of 1870. The liquid preparations, except Paregoric, are now directed to be of the uniform Opium-strength of 10 per cent. by weight, making the Wine less strong by 2 per cent., the Acetum fully ⅓ less in strength, and the other liquid preparations stronger by ½ in Morphine than formerly. So that if the full anodyne dose of Tincture or Deodorized Tincture be taken at 24 minims, equalling gr. ¼ of Morphine Sulphate, the corresponding dose under the new system will be 16 minims.]

Liquor Opii Compositus, Compound Solution of Opium (Squibb), Unofficial,—has the same strength as the official tinctures, namely gr. vj of Morphine, (equalling gr. vijss of the Sulphate) to each fluidounce. ♏xvj = gr. ¼ of Morphine Sulphate.

Tinctura Opii Composita, Squibb's Diarrhœa Mixture (Unofficial),—has of Tinct. Opii, Spt. Camphoræ and Tinct. Capsici ℥j of each, Purified Chloroform ʒiij, Stronger Alcohol q. s. ad ℥v. Each fl ʒ or teaspoonful contains about 100 drops or ♏xij of each of the first three ingredients and ♏ivss or 18 drops of Chloroform. Dose, for infants gtt. j–x, for children gtt. x–xxx, for adults ʒj.

Emplastrum Opii,—Extract of Opium 6, Burgundy Pitch 18, Lead Plaster 76 parts.

Pulvis Ipecacuanhæ et Opii, Dover's Powder,—Ipecac 10, Powdered Opium 10, Sugar of Milk 80, triturated to a fine powder. Dose, gr. v–xv, ten grains equalling one grain each of Ipecac and Opium.

Tinctura Ipecacuanhæ et Opii,—Deodorized Tincture of Opium 100 parts evaporated to 85, Fluid Extract of Ipecac 10, Diluted Alcohol q. s. ad 100. Intended to represent Dover's Powder in a liquid form. Dose, ♏v–xv.

Trochisci Glycyrrhizæ et Opii,—each troche contains Extract of Opium gr. $\frac{1}{20}$ with Extract of Liquorice, Acacia, Sugar and Oil of Anise. Dose, j–iv.

Preparations of Morphine.

Morphina, Morphine, $C_{17}H_{19}NO_3.H_2O$,—white, prismatic crystals or a crystalline powder, odorless, of bitter taste and alkaline reaction, almost insoluble in water, soluble in 100 of alcohol. Its comparative insolubility makes the salts preferable for use, and as a very small proportion of acid neutralizes it, the dosage is about the same for the alkaloid and its salts, viz., gr. $\frac{1}{20}$–gr. j. Gr. ¼–⅕ is about equal to one grain of Opium of medium Morphine-strength. [Compare *Morphinæ Sulphas*, below.]

Morphinæ Acetas, Acetate of Morphine,—a white, crystalline or amorphous powder, of faintly acetous odor, bitter taste, neutral or faintly alkaline reaction, soluble when fresh in 12 of water and in 68 of alcohol at 59° F. Dose, gr. $\frac{1}{20}$–j.

Morphinæ Hydrochloras, Hydrochlorate of Morphine,—white, feathery crystals of silky lustre, of bitter taste and neutral reaction, soluble in 24 of water and in 63 of alcohol at 59° F. Dose, gr. $\frac{1}{20}$–j.

Morphinæ Sulphas, Sulphate of Morphine,—white, feathery, acicular crystals of silky lustre, of bitter taste and neutral reaction, soluble in 24 of water and in 702 of alcohol at 59° F., and in 0.75 of boiling water. Contains about 80 per cent. of Morphine. Dose, gr. $\frac{1}{12}$–gr. j; $\frac{1}{20}$–⅛ being a small dose for an adult, ⅛–¼ a moderate one, ¼–½ a full dose, and ½–j a large one.

Pulvis Morphinæ Compositus, Tully's Powder,—has of Morphine Sulphate 1 part to 20 each of Camphor, Liquorice and Calcium Carbonate. A similar preparation to Dover's

Powder minus the Ipecac. Dose, gr. v–xv, ten grains containing gr. $\frac{1}{6}$ of Morphine Sulphate.

Trochisci Morphinæ et Ipecacuanhæ,—each troche contains gr. $\frac{1}{40}$ of Morphine Sulphate with about gr. $\frac{1}{12}$ of Ipecac, also Sugar, Oil of Gaultheria and Mucilage of Tragacanth. Dose, one every hour or so, cautiously with children.

Injectio Morphinæ Hypodermica (B. P.),—is a solution of the Acetate, containing gr. j in each ten minims, being thrice as strong as Magendie's solution. Dose, ♏j-iij.

Liquor Morphinæ Sulphatis, Magendie's Solution (Unofficial),—has gr. xvj of Morphine Sulphate in each fl℥, or gr. j in ♏xxx, or gr. ¼ in ♏vijss. If made with Benzoic Acid, the solution will not spoil, and is not irritant hypodermically. The same result is attained by adding of Carbolic Acid, ♏iij to the ℥.

Tinctura Chloroformi et Morphinæ (B. P.),—a substitute for Chlorodyne. See *ante*, page 169.

Oleatum Morphinæ, Oleate of Morphine (Unofficial),—Morphine-strength 10 per cent. with Oleic Acid 90. For local use.

Preparations of Other Alkaloids.

Codeina, Codeine, $C_{18}H_{21}NO_3.H_2O$,—white or yellowish-white, rhombic prisms, efflorescent in warm air, of bitter taste and alkaline reaction, soluble in 80 of water at 59° F. and in 17 of boiling water, very soluble in alcohol, chloroform and ether. This alkaloid is official. Dose, gr. ss–ij, but gr. $\frac{1}{8}$ has caused alarming symptoms in children.

Narcotinæ Hydrochloras, Hydrochlorate of Narcotine (Unofficial),—Dose, gr. ij–x, as an antiperiodic.

The Tincture of Opium is an ingredient of Mistura Magnesiæ et Asafœtidæ, and the Camphorated Tincture is an ingredient of Mistura Glycyrrhizæ Composita. (See *ante*, pages 272, 228.)

Children bear Opium badly, and for them its proportionate dosage should be much below that for other agents. Morphine should not be given to children below 10 years of age, and never hypodermically to those beneath the age of 15. Opium given to a nursing mother will affect the child, being partly excreted in the milk.

Reactions and Incompatibles.

An aqueous or alcoholic preparation of Opium reddens litmus paper (free meconic acid);—gives a deep red color with Perchloride of Iron (meconic acid);—forms precipitates with Acetate and Subacetate of Lead, Nitrate of Silver, Zinc, Copper, and Arsenic (meconates, sulphates and coloring matter);—forms a precipitate with tincture of Galls or astringent preparations (tannates of morphine and codeine);—and becomes turbid with the fixed Alkalies, Carbonates, Alkaline Earths, and Ammonia (precipitated morphine and narcotine).

Tests for Morphine.

Nitric Acid produces a blood-red, turning orange, then yellow, then disappearing. Test-solution of Ferric Chloride gives a blue color changing to green with excess of the reagent, and destroyed by free acids or alcohol, but not by alkalies. Iodic Acid liberates Iodine which may be tested by starch.

PHYSIOLOGICAL ACTION.

Opium is analgesic, hypnotic, antispasmodic, diaphoretic and narcotic. It first stimulates then depresses the cerebrum, heart and respiratory apparatus, and is classed among the cerebral depressants.

In medium dose (gr. j) it arrests all the secretions except the milk and sweat, the latter being increased; producing dryness of the mouth and throat, retarded digestion from stoppage of the gastric juice, and decided loss of appetite. The action of the heart is increased, arterial tension raised and the pupils slightly contracted. The cerebral faculties are stimulated by increased blood-supply to a pleasant activity, ideas follow each other rapidly through the mind, and an exhilaration bordering on mild intoxication is experienced, succeeded by a calm of variable length. Sleep generally follows, disturbed, however, by dreams, and after waking headache, malaise, constipation, digestive disturbance and some depression result. The conductivity of the nerves is not affected. Frequently the stage of mental activity is absent, but in persons habituated to the use of Opium it is usually well marked. In some subjects a lengthened period of calm repose takes the place of sleep, in others neither calm nor sleep occurs, but the stimulant action of the drug prevails, the spinal functions as well as the cerebral are exalted, and great restlessness is the result.

In full dose (gr. iij–v) the same symptoms are produced but in greater intensity; the stage of stimulation is much shorter, digestion is arrested, nausea and vomiting produced, also profuse diaphoresis. The conductivity of the nerves is more or less impaired, the heart and circulation depressed, oxidation being interfered with and the body-temperature lowered. The pupils are contracted by stimulation of the motor oculi through the basal ganglia, intense pruritus is produced especially at the nose, and often spasmodic retention of the urine. Profound sopor soon comes on, with irregular and slow respiration, but in some subjects this is replaced by coma-vigil and delirium. After-effects are nausea, depression, constipation, racking headache, vertigo, anorexia, nasal pruritus and fetid pathological secretions.

A toxic dose produces cold and clammy sweat, very slow pulse, slow and stertorous respiration gradually becoming feeble and irregular, cyanosed face, abolished reflexes, coma gradually deepening, the pupils minutely contracted but dilating as the end approaches, and finally death by paralysis of the respiratory centre due to direct action on the medulla. Post-mortem shows only a wet brain, congested lungs, and engorgement of the venous trunks and of the right heart.

The principal action of Opium is exerted upon the nervous system, first affecting the cerebral convolutions which are briefly stimulated and soon depressed,—next the perceptive and sensory centres in the higher brain are more or less blunted and the conductivity of the afferent nerves impaired,—soon the ganglia at the base of the brain are involved, evinced by the contraction of the pupils, vomiting, and slowing of respiration,—the cardiac, vascular and other centres are depressed but to a less degree than the respiratory and perceptive,—the gray matter of the cord, at first stimulated, as shown by the increase of reflex excitability, is also depressed, and locomotion becomes difficult, the motor nerves becoming paralyzed from the centre outwards, but muscular irritability is never lost.

Death generally occurs by paralysis of the respiratory centre, rarely by sudden cardiac failure.

Metabolism is greatly reduced in activity by Opium, the quantity of urea excreted being markedly lessened, and the biliary and glycogenic functions of the liver being affected, resulting in whitish stools, perhaps jaundice, and certainly decided decrease of the sugar excreted by diabetics, when given by the stomach.

On the uterine and generative functions Opium exerts a marked influence, stopping menstruation if its use be continued, and in men causing impotence. Both male and female functions, however, return as soon as the drug is discontinued.

The hypnotic action of Opium is now believed to be produced by a double influence, (1) on the vascular system, causing anæmia of the brain, (2) on the cerebral cells, diminishing their activity and consequently lessening their demand for blood.

Its constipating action is shown experimentally to be produced by stimulation of the inhibitory nerves of the intestines through the splanchnics.

Morphine acts similarly to Opium in general, being the principal alkaloid therein, but when used alone its influence is not complicated with that of the convulsant alkaloids (Thebaine, Codeine, Narcotine), which must affect to a considerable degree the action of Opium. Consequently, as compared with the latter, Morphine acts more quickly, and for a shorter time, has less influence on the intestines and skin, is less constipating, less stimulant, less convulsant and less diaphoretic, but more sedative, more anodyne and hypnotic and produces more intense pruritus. Its excretion commences quickly but may not be completed for as much as 48 hours, and is effected by most of the secretions, especially by the urine. It is probably retained in the system when the action of the kidneys is defective, and hence when given in renal disease may accumulate with fatal results.

Codeine may chemically be considered a Methyl-morphine, and like all methyl compounds, has an action like that of Curare, viz.,—a motor-paralyzant. It exalts the spinal cord more than Morphine and affects the cerebrum less, producing muscular tremor in excess of the sedative action. It is anodyne and hypnotic with less general disturbance than produced by Morphine. It markedly reduces the amount of sugar excreted by diabetics, and has a special sedative influence on the pneumogastric nerve.

Narcotine should be named Anarcotine, as it has little or no narcotic power. It is a convulsant in animals and an antiperiodic in man.

Narceine is said by some observers to be remarkably hypnotic, and free from convulsant action,—by others equally deserving of credit it is considered almost inert. This alkaloid is difficult to obtain pure; hence the samples heretofore used have probably been contaminated with other alkaloids.

Thebaine is a powerful convulsant, exalting the spinal cord almost like Strychnine and Brucine. It is not used medicinally.

FATAL DOSES.

In a child one day old ♏j of Laudanum caused death. A medicinal dose given to a nursing mother proved fatal to the infant. A few drops of Paregoric have killed a child of nine months. In the adult gr. $\frac{1}{6}$ of Morphine in one case, and gr. iv of crude Opium in another, have proved fatal.

Antagonists and Treatment of Poisoning.

Atropine antagonizes the cerebral action of Morphine, also its action on the pupils, respiration, heart and arterial tension, but if given too freely will endanger the case by substituting Belladonna-narcosis for Opium-narcosis. Gr. $\frac{1}{120}$ hypodermically every 15 minutes for three doses, is generally sufficient. *Caffeine* is also physiologically antagonistic, and is generally used in the form of strong black coffee frequently administered. The chief indications in Opium-poisoning are—to evacuate the stomach, maintain respiration and keep up the circulation. Faradization of the chest muscles, cold affusion, and artificial respiration are of great value, and evacuation of the bladder is important. Flagellation is a very dangerous procedure, from the exhaustion which may be produced; strong faradic currents are much more efficient. The anode should be placed over the lowest conjoined root of the phrenic nerve—the cathode three inches below the ensiform cartilage, and a little to the left of the median line.

Strychnine is an efficient antagonist to the respiratory paralysis, and may be used in lieu of Atropine, or in connection therewith. *Amyl Nitrite* should also be used when the heart shows signs of failure.

Some of the cerebral effects of Opium, as vertigo and mental confusion, are removed by a full dose of Potassium Bromide, others are antagonized by Quinine, and the general intra-cranial effects of the drug are to some extent opposed by Digitalis and Tartar Emetic.

Atropine may be advantageously combined with Morphine in solution for hypodermic injection, in the proportions of gr. $\frac{1}{120}$ to $\frac{1}{100}$ of the former to gr. $\frac{1}{4}$ of the latter, preventing the sickness and depression and many other unpleasant after-effects of Morphine, while increasing its anodyne, hypnotic and antispasmodic powers.

THERAPEUTICS.

The chief indications for the use of Opium are (1) to relieve pain from any cause except acute inflammation of the brain,—(2) to produce sleep, particularly in the insomnia of low fevers with delirium, in which the combination of Morphine and Chloral is very efficient,—(3) to allay irritation in the various forms of acute nervous erethism,—(4) to check excessive secretion, as in diarrhœas, dysentery, diabetes, ptyalism, etc.,—(5) to support the system in low fevers and other adynamic conditions, when sufficient food cannot be retained,—(6) as a sudorific, to produce sweating in coryza, etc. It is considered of especial value in any irritation of the stomach, bladder or bronchi, in severe vomiting, both forms of diabetes, gastralgia, colic and muscular spasm. In diabetes mellitus Morphine *per orem* reduces the sugar promptly, but when used hypodermically it has little or no effect thereon, even in the same case. In peritonitis and inflammations of other serous membranes, used freely even to narcotism it has often saved life. In cerebro-spinal meningitis it is the one remedy if given early, before exudation has set in. Cholera morbus and dysentery are efficiently treated by Morphine and Atropine hypodermically (gr. $\frac{1}{12}$ with gr. $\frac{1}{120}$) after the ingesta have been removed by purging. In acute uræmia its use in large doses is recommended by Loomis to control convulsions and promote diuresis, but here it is a dangerous agent. In muscular rheumatism and acute colds Dover's powder as a diaphoretic, conjoined with hot drinks and foot-baths, is old but excellent treatment. In delirium tremens, acute and chronic mania and melancholia, nervous prostration and the delirium of fevers, Opium is probably the best hypnotic. Severe pain from any cause (except cerebritis) is relieved by Opium with an efficiency possessed by no other drug, as the pain of sciatica, neuralgia, lumbago, cancer, renal and hepatic colic from calculi, etc. Cough of harassing and frequent character with but little secretion is best treated by Opium, but when there is profuse expectoration it should not be used, as the lowering of excitability of the respiratory centre which it produces would in such a case be dangerous. In nearly all acute inflammations it is valuable, especially where it becomes advisable to lock up the bowels. Its tranquillizing power over the circulation makes it invaluable in the various forms of hemorrhage, while in that from uterine fibroids and cancer the implanting of the Opium-habit is deserving of serious consideration as a most beneficial measure, as it checks and even stops the bleeding, as soon as established. Dyspnœa from any cause is relieved by Morphine, especially that of cardiac disease. "It gives the power to breathe" (Huchard). In cardiac disease, especially aortic stenosis or insufficiency, with dyspnœa, paroxysms of angina pectoris, or signs of cerebral anæmia,—Morphine hypodermically presents the greatest advantages.

APPLICATIONS OF THE VARIOUS PREPARATIONS.

Intense pain, as from the passage of calculi, is best met by hypodermic injection of Morphine Sulphate in full doses (gr. ¼–½) with Atropine Sulphate (gr. $\frac{1}{100}$). Either the Solution of Morphine or the liquid preparations of Opium may be given by the mouth in corresponding doses for the same purpose. Severe pain enables the system to resist the action of Opium, which in such cases should be repeated at short intervals for effect regardless of dosage.

Superficial pain is often alleviated by the Plaster or by extemporaneous liniments containing Laudanum or some other fluid preparation. It is, however, very doubtful whether such applications are of direct value, as Morphine is not absorbed by the unbroken integument; but the Oleate of Morphine is said to be very penetrating.

To produce sleep the most efficient preparations are the Deodorized ncture, the Solution of Morphine, Pil. Opii and Dover's Powder, in ses corresponding to the degree of insomnia and restlessness present.

Cough is relieved by the two Trochisci, the Deodorized and Camphor- d Tinctures, and by the Solution of Morphine in small doses with rup of Wild Cherry or Syrup of Tolu.

Diaphoresis is best obtained by the use of Dover's Powder in either of three forms.

Sedative action is obtained by different preparations for different organs. *e stomach* is best affected by the Solution of Morphine in effervescing xtures, the Extract in a small pill, or Morphine hypodermically over epigastrium. *The intestines* may be influenced by Laudanum in a rch enema, or internally by Dover's Powder, Pulvis Opii, or Pil. Opii, ecially the latter with or without Calomel, as an astringent when the wel must be paralyzed, as in peritonitis, hernia, intussusception, etc. *e rectum and other pelvic organs* are promptly affected by a suppository the Extract of Opium, gr. ¼ with gr. $\frac{1}{12}$ of the Extract of Belladonna.

ADMINISTRATION.

Probably no drug in the Materia Medica is so useful as Opium, or has wide a range of application. At the same time no drug requires such reful handling, by reason of the many influences which modify its action d uses. As before pointed out, children are extremely susceptible to its rcotic action, and women are more easily affected by it than men. ny persons are found with idiosyncrasies in respect to Opium, some ing easily narcotized, others being remarkably insusceptible to its action, d many suffer from a decided shock after its hypodermic administration, ich may even produce alarming symptoms of collapse. In subjects of ney disease it may accumulate and act more powerfully than expected, d generally it may be said to be *contraindicated* or to be used with great e in alcoholism, congestion of the brain, and advanced disease of the piratory organs, heart and kidneys.

The conjoint administration with opiates, of the Spiritus Ætheris, iritus Ætheris Comp., or Spiritus Ætheris Nitrosi, an equal part with nctura Opii Deodorata, will prevent the nausea often excited by the ter, and correct the "drying-up" effects of opium, due to its checking retion.

ORPHINE AND ATROPINE are sufficiently antagonistic to each other to make their bination extremely valuable as a therapeutic measure, and their use as mutual antidotes poisoning by either a most efficient procedure if employed with due precautions. When phine is given as a hypnotic or an anodyne, Atropine should always be administered the same time in the proportion of gr. $\frac{1}{120}-\frac{1}{100}$ of the latter to gr. ¼ of the former. this means the anodyne and hypnotic qualities of Morphine are increased, while the sea and depression with the subsequent dyspepsia and constipation due to it are avoided. oreover, as in the doses above mentioned Atropine is a cardiac and respiratory stimu- nt, it will counteract the depressing tendency of Morphine on the heart and respiration subjects who have undue susceptibility to its action.

ORIGANUM, Wild Marjoram,—is the plant *Origanum vulgare*, a perennial herb of the nat. ord. Labiatæ, native of Europe and America, having a stem branched above, petiolate leaves about an inch long and hairy beneath, pale purple flowers, aromatic, pungent and bitterish. It contains a Volatile Oil, some tannin, resin, and a bitter principle. The oil was formerly much used and was official, but it is now entirely superseded by the Oil of Thyme. Origanum is an ingredient of Vinum Aromaticum. There are no official preparations. Dose, ʒj–ij, in infusion.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Origanum is gently tonic, also carminative, stimulant and emmenagogue. It was formerly much employed as a diaphoretic, etc., but is now rarely administered.

PANCREATINUM, Pancreatin (Unofficial),—is the juice of the pancreas, and consists of four ferments: (1) *Pancreatic Diastase*, the amylolytic ferment, (2) *Trypsin*, the proteolytic ferment, (3) a fat-emulsifying and (4) a milk-curdling ferment. It is marketed in various forms, named Pancreatine, Pancreatic Emulsion, and Liquor Pancreaticus, of which the last-named is the most efficient preparation.

Liquor Pancreaticus, Pancreatic Solution (Unofficial),—prepared by digesting a finely-chopped pig's pancreas with 4 times its weight of dilute alcohol. Is a nearly clear alcoholic solution, with little taste or smell. Dose, ʒj–℥ss.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Pancreatic preparations are active digestives of proteid and amyloid foods, converting proteids into peptones, and emulsifying fats, in the presence of an alkaline solution (Pepsin requiring an acid one). Pancreatin is digested by Pepsin, and hence probably never passes into the duodenum in its own character. Trypsin affects albuminoids even in a slightly acid solution. Liquor Pancreaticus is used to partially digest (peptonize) milk, gruel, soups and other foods, before their administration in cases of great digestive debility. These peptonized foods may be administered *per orem vel rectum*, and are valuable in intestinal dyspepsia, wasting diseases, and convalescence from acute affections. A teaspoonful taken after the administration of Cod-liver Oil will prevent the disagreeable eructations which are so offensive to some patients, and will aid in the digestion of the oil.

TRYPSIN, unlike Pepsin, will dissolve mucin, and like Pepsin it is inert towards nuclein, horny tissues and amyloid matter. Used as a spray on diphtheretic membrane it has proved a very efficient solvent.

PAPAIN, Papaiva (Unofficial),—is a ferment obtained from the milky juice of *Carica Papaya*, a S. American fruit-tree of the nat. ord.

Capayaceæ. It is soluble in water but not in alcohol, and has active igestive powers. It softens and dissolves fibrin in liquids which may e either acid, or neutral, or slightly alkaline, in this respect differing reatly from Pepsin. It also acts at higher temperatures and more rapidly han Pepsin. It is a rapid solvent of false membranes and intestinal orms. It has been injected into tumors, dissolving the tissues in its icinity, but with much pain and considerable febrile reaction. It is not sed internally, as it is feared that it may digest the gastro-intestinal mucous membrane as well as its contents.

Papaw Milk is the milky juice of the fruit, coagulating into two parts, a pulpy mass nd a liquid serum. When mixed with alcohol an amorphous powder is precipitated, hich when dried forms Papain.

PARALDEHYDE, $C_6H_{12}O_3$ (Unofficial),—is a polymeric modifiation of Aldehyde, fluid above 51° F., solidifying below that temperaure, soluble in 50 of water. Dose, ♏xx–ʒj. It is powerfully hypnotic nd diuretic, but has no diaphoretic action. It possesses many of the ualities of Chloral with none of its dangers, strengthening and slowing he heart, instead of weakening it. A toxic dose paralyzes the medulla nd the respiratory centre. As compared with Chloral its action is ot so persistent and it requires more frequent repetition, but it is unuestionably safer. As a hypnotic it has been used with great benefit n fevers, rheumatism, acute mania, hysteria, and insomnia from various auses. The above-mentioned maximum dose has frequently been iven without any ill-effect, and with no digestive or cerebral disurbances afterwards.

For formula see under INSOMNIA, in Part III.

PAREIRA, Pareira Brava,—is the root of *Chondodendron tomenosum*, a climbing, woody vine of the nat. ord. Menispermaceæ, with ery large leaves and grape-like fruit, inhabiting Peru and Brazil. Occurs n sub-cylindrical, tortuous pieces, 4 to 6 inches long, dark brownish-ray externally, with transverse ridges, fissures and furrows; internally ale-brown, interior woody, porous, in concentric circles with medullary ays. It contains *Pelosine* or *Cissampeline*, an alkaloid identical with the Berberine of *Nectandra* and the Buxine of *Buxus sempervirens* (Boxwood).

Several other Pareiras are on the market, that from the West Indies (*Cissampelos Pareira*) being the plant formerly official in the Br. Pharmacopœia.

Preparations.

Extractum Pareiræ Fluidum,—Dose, ʒss–ʒj.
Infusum Pareiræ (Unofficial),—1 in 17. Dose, ℥j–ij.

Physiological Action and Therapeutics.

Pareira is diuretic and laxative, stimulating peristalsis and the action of the kidneys. It is eliminated by the renal secretion, and passing over the mucous membrane of the genito-urinary tract, it acts thereon in a tonic and soothing manner, especially on the bladder.

It is particularly useful in chronic cystitis, suppurative kidney diseases, gonorrhœa and gleet, but must be used internally, as when injected locally for gonorrhœa and cystitis it has not proved successful. Formerly Pareira was considered an efficient lithontriptic, and in Brazil it is used as a cure for bites of poisonous serpents, being employed both internally and locally to the wound.

PEPO, Pumpkin-seed,—is the seed of *Cucurbita Pepo*, or common Pumpkin (nat. ord. Cucurbitaceæ), about ¾ inch long, white, flat, oval, inodorous, bland and oily. The active principle is a resin contained in the endopleuron or envelope immediately surrounding the embryo. It also contains an alkaloid *Cucurbitine*, a fixed oil, starch, sugar, etc. There are no official preparations. Dose, of the resin, gr. xv; of the seeds, ℥j–ij, beaten up in emulsion with sugar and water.

Physiological Action and Therapeutics.

Pumpkin-seed is an efficient agent for the removal of tapeworm (tæniafuge), and its use is not followed by unpleasant symptoms. The outer coat of the seed should be removed, and an emulsion then made by trituration with sugar and water. This, if taken on an empty stomach and followed by a brisk cathartic, will generally prove effective. Dr. Squibb maintains that the seeds should not be decorticated, but that husks and all should be swallowed. According to some observers the expressed oil is equally efficient in doses of ℥ss repeated twice or three times, and followed by a cathartic.

PEPSINUM, Pepsin,—is a hypothetical name for the digestive principle of the gastric juice, and as a definite body is unknown, the various preparations, official and unofficial, being mere approximations, and vary much from each other. They are usually obtained from a solution prepared by digesting the mucous membrane scraped from the rennet-bags of sheep or the stomach of the pig in acidulated water for several days. The so-called "Pepsin" is then precipitated by Chloride of Sodium (*Scheffer*), Acetate of Lead (*Boudault*), or by drying the peptones on glass plates (*Beale*). It may also be precipitated by alcohol. By Scheffer's process it occurs as a tough, gray, leathery substance, partially soluble in water, one grain dissolving 3000 grains of albumen in a few days. Jensen's "Crystal Pepsin," probably prepared after Beale's method, is in yellowish, translucent scales, soluble in water, and reputed to be many times stronger than any other preparation yet obtained.

Preparations.

Pepsinum Saccharatum, Saccharated Pepsin,—is Pepsin obtained from the mucous membrane of the hog, and mixed with powdered Sugar of Milk. One part dissolved in 500 of water acidulated with 7½ of Hydrochloric Acid, should digest at least 50 parts of hard-boiled egg-albumen in 5 or 6 hours at a temperature of 100° to 104° F. Dose, gr. v–ʒj, soon after meals.

Liquor Pepsini, Liquid Pepsin,—contains of Saccharated Pepsin 40 parts, Hydrochloric Acid 12, Glycerin 400, Water q. s. ad 1000 parts. Dose, ʒij–iv, after meals.

Lactopeptine (Unofficial),—claimed to contain Pepsin, Diastase or Ptyalin, Pancreatin, Lactic and Hydrochloric Acids, and that ʒj will digest ℥viij–x of albumen, fibrin, casein or gelatin, will emulsionize ℥xvj of cod-liver oil, and convert ℥iv of starch into glucose. A proprietary preparation. Dose, gr. v–xv. Is said to break a glass, if stirred therein with water.

Ingluvin (Unofficial),—is a preparation obtained from the gizzard of the domestic fowl, which owes its activity to no ferment corresponding to Pepsin, but to a peculiar bitter principle. Dose, gr. x–xxx.

[Every manufacturer has his own preparation of Pepsin, and his peculiar name therefor, such as "Liquid Pancreopepsine," "Lacto-peptine," "Gluco pepsine," "Golden Scale Pepsin," "Peptogenic Milk Powder," etc. They vary considerably in their properties, but all have the power in some degree of digesting albumen or fibrin.]

PHYSIOLOGICAL ACTION.

Pepsin is not a solvent but a ferment, and is a normal constituent of the gastric juice, converting albuminoids (casein, albumen, fibrin, etc.) into peptones for assimilation, with the aid of the Lactic and Hydrochloric Acids associated with it. This it will do out of the body or in cavities as the rectum, if warmth, acidity and moisture be present. Pancreatin, on the other hand, is destroyed by acids and requires an alkaline medium in which to exercise its powers. As the food passes out of the stomach in 2 or 3 hours, Pepsin should be administered within, and Pancreatin after that period to be effective.

Incompatibles.

Alcohol destroys the activity of Pepsin. Alkalies and many mineral salts precipitate it.

THERAPEUTICS.

Dyspepsia in its various forms is the malady for which Pepsin is chiefly employed, but it is also extremely useful in the apepsia of infants, gastralgia, anæmia, chlorosis, gastric ulcer and cancer, the diarrhœa of infants and the vomiting of pregnancy. It is added to nutritive enemata, the rectum not being a digestive organ, and is injected into the substance of morbid growths which are homologous to the tissues, particularly fatty tumors, for the purpose of arresting their growth and promoting their absorption. It has been injected into the bladder to break down a blood-clot, and has been suggested as an atomized inhalation in diphtheria and croup to digest the membrane without injuring the living tissues.

INGLUVIN is particularly useful against vomiting and has been found exceptionally efficient in the vomiting of pregnancy, given in 20-grain doses before meals. [Compare PANCREATIN, *ante*, page 300.]

PETROLATUM, Petroleum Ointment,—is a semi-solid substance, consisting of hydrocarbons, obtained from Petroleum by distilling off the lighter portions and purifying the residue. It is a yellowish, fat-like mass, somewhat fluorescent, amorphous, odorless and tasteless, of neutral reaction, insoluble in water or alcohol, soluble in ether, chloroform, fixed and volatile oils, benzin, etc. Its melting point is from 104° F. to 125° F., the first being the softer, and the second the firmer variety. Commercially, it is known as *Cosmoline*, *Vaseline*, etc., and is largely prepared from residuums or sediments deposited in tanks containing crude petroleum.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Petrolatum is a valuable protective dressing, and an excellent basis for ointments, having no acridity and no liability to become rancid. It is readily miscible with many active agents, as the alkaloids, phenol compounds, etc., but it does not penetrate the skin as readily as animal fats and fixed oils. Uncombined, it forms an excellent bland application in all irritated conditions and injuries of the skin.

PHOSPHORUS, Phosphites and Phosphates,—are best studied together, as the supplying of the element Phosphorus to the body is the aim of the administration of these agents.

Phosphorus, P,—is a non-metallic element obtained from bones, and occurs as a translucent, nearly colorless solid, of waxy lustre, and usually the consistence of beeswax, insoluble in water, soluble in 50 parts of any fatty oil, in 80 of absolute ether, 350 of absolute alcohol, and freely in carbon bisulphide. It has a disagreeable odor and taste, melts at 111° F., is luminous in the dark, ignites in the air, and should be kept under water in a cool place, protected from light. It usually contains Arsenic and sometimes Sulphur, the limits of which are fixed by the pharmacopœial tests. Dose, gr. $\frac{1}{100}$–$\frac{1}{10}$, thrice daily.

Preparations of Phosphorus.

Pilulæ Phosphori, Pills of Phosphorus,—each contains gr. $\frac{1}{100}$ of Phosphorus, dissolved in Chloroform, mixed with Althæa and Acacia in Glycerin and Water, and coated by shaking with a solution of Balsam of Tolu in Ether. Dose, j–v.

Oleum Phosphoratum, Phosphorated Oil,—has of Phosphorus 1 part, Æther Fortior 8, Expressed Oil of Almond q. s. ad 100 parts. Dose, ♏j–v, thrice daily.

Acidum Phosphoricum and *Acidum Phosphoricum Dilutum*,—are described on page 72, *ante*.

Tinctura Phosphori (Thompson's), Unofficial,—Phosphorus gr. j, Absolute Alcohol

Glycerin ℥j½, Alcohol ʒij, Spt. Menthæ Piperitæ ♏xl. Of this ʒj contains gr. f Phosphorus.

incturi Phosphori (Bellevue Hospital), Unofficial,—Phosphorus gr. xxxij, Absolute hol ℥xlvj, Essence of Vanilla ℥j, Oil of Orange ʒiij, Alcohol q. s. ad ℥xlviij. this ʒj contains gr. $\frac{1}{12}$ of Phosphorus.

inci Phosphidum, Phosphide of Zinc, Zn_3P_2,—crystalline fragments or a gray-black der, insoluble in water or alcohol, but completely soluble in hydrochloric or sulphuric ls with evolution of phosphoretted hydrogen. Is very irritant to the stomach. Dose, $\frac{1}{10}$–$\frac{1}{20}$.

Preparations of Phosphites.

Calcii Hypophosphis, Hypophosphite of Calcium, $Ca_4(PO_2)_3$,—colorless prisms, or n, pearly scales, of nauseous taste, soluble in 6.8 of water, insoluble in alcohol. Is an redient of the Syrupus Hypophosphitum. Dose, gr. x–xxx.

Ferri Hypophosphis, Ferric Hypophosphite, $Fe_2(H_2PO_2)_6$,—a white or grayish-white wder, odorless and tasteless, slightly soluble in water, freely so in hydrochloric acid or olution of sodium nitrate. Dose, gr. v–x. A ferruginous tonic.

Potassii Hypophosphis, KH_2PO_2,—white masses, or a white, granular powder, deliescent, odorless, of saline taste and neutral reaction. Soluble in 0.6 of water and in of alcohol at 59° F. Dose, gr. v–x.

Sodii Hypophosphis, $NaH_2PO_2H_2O$,—small plates, or a white, granular powder, deliescent, odorless, of sweetish, saline taste and neutral reaction. Soluble in 1 of water d 30 of alcohol at 59° F. Dose, gr. v–x.

Syrupus Hypophosphitum, Syrup of Hypophosphites,—has of the Calcium salt 35, of e Sodium and Potassium salts each 12, Citric Acid 1, Spirit of Lemon 2, Sugar 500, ater q. s. ad 1000 parts. Dose, ʒj–℥j.

Syrupus Hypophosphitum cum Ferro, Syrup of Hypophosphites with Iron,—has of the eceding 99 parts with 1 of the Lactate of Iron, dissolved by trituration. Dose, ʒj–℥j.

Preparations of Phosphates.

Calcii Phosphas Præcipitatus, Precipitated Phosphate of Calcium, $Ca_3(PO_4)_2$,—a light, ite, amorphous powder, odorless and tasteless, insoluble in water or in alcohol. Dose, ij-x.

Syrupus Calcii Lactophosphatis, has of the preceding 22 parts, Lactic Acid 33, Orangewer Water 80, Sugar 600, Hydrochloric Acid, Water of Ammonia, Water, āā q. s. ad 00. The Phosphate of Calcium is dissolved by the acid, but does not enter into the emical combination suggested by the title. Dose, ʒj–℥j.

Sodii Phosphas, $Na_2HPO_4.12H_2O$,—large, monoclinic prisms, efflorescent, of saline te and alkaline reaction. Soluble in 6 of water at 59° F., insoluble in alcohol. Dose, -℥j.

Sodii Pyrophosphas, $Na_4P_2O_7.10H_2O$,—colorless, monoclinic prisms, of saline taste d alkaline reaction. Soluble in 12 of water at 59° F., insoluble in alcohol. Dose, ʒss–ss.

Syrupus Ferri, Quininæ et Strychninæ Phosphatum,—has of the Phosphate of Iron 3, Quinine 133, Strychnine 4, Phosphoric Acid 800, Sugar 6000, Distilled Water q. s. 10,000 parts. A powerful tonic. Dose, ʒj–ij.

Syrupus Phosphatum Compositus, Compound Syrup of Phosphates, Parrish's Chemical od (Unofficial),—has in each ʒ Phosphate of Iron gr. 2½, Phosphate of Calcium gr. j. se, ʒj–ij.

Ammonii Phosphas, *Ferri Phosphas* and *Ferri Pyrophosphas* are respectively described pages 94 and 216.

PHYSIOLOGICAL ACTION.

PHOSPHORUS in small doses stimulates the brain and circulation, the nctions of the stomach and the genital organs, and the growth of bones. aids digestion by irritating the end-organs of the gastric nerves, and oduces eructations of Hydrogen Phosphide. Its fumes cause necrosis f the upper or lower maxillæ, especially in those whose teeth are decayed, ut this may be prevented by the inhalation of fumes from old acid turentine. In poisonous doses it is a powerful irritant of the gastro-intestinal tract, causing vomiting and purging with great depression of the vi forces. Reaching the blood as Phosphorus, it is partly oxidized at t expense of the oxygen of the red corpuscles, causes acute hemorrhag from fatty degeneration of the arterial walls, rapid steatosis of the stomac liver and heart, with deep jaundice,—then delirium, convulsions, co and death usually from gradual failure of the respiration and circulatio Acute yellow atrophy of the liver resembles acute phosphorus-poisoni so much that it is generally impossible to distinguish between them.

Its effect on metabolism is to increase the nitrogenous products, diminish the excretion of carbonic acid, reduce the glycogen of the liv to almost nothing, and to raise the temperature. While generally increa ing metabolism it so influences that process as to arrest it at the stage conversion of proteids into urea and oil, instead of allowing it to procee to the final oxidation of oil into carbonic acid and water, hence leadi to fatty degeneration of epithelial, glandular and muscular protoplas throughout the body.

Phosphate of Calcium is an essential ingredient of all the tissues a fluids of the body, and forms more than 50 per cent. of the bones. Lact and Hydrochloric acids dissolve it in small quantities. It increases t alkalinity of the blood as well as its power of holding Carbonic Acid, a diminishes the excretion of urea.

Phosphate of Sodium acts on the blood and on the excretion of u similarly to the calcium salt. It increases secretion generally, especial of the bile, being an excellent cholagogue and thereby aiding in t digestion of fats. In ounce doses it is laxative. It is a normal constitue of the blood, and possesses the property of increasing the capacity of a fluid to hold Carbonic Acid in solution.

The Hypophosphites are generally tonic, and are supposed to co stitute a safer form in which to administer Phosphorus than in the unox ized state. They are probably converted into phosphates in the stomac

Antidotes and Antagonists.

Antidotes are hydrated magnesia, lime-water, powdered charcoal, sulphate of cop and old acid turpentine. *Sulphate of Copper* is the best emetic, forming a comparativ insoluble phosphide of copper; 3-grain doses should be given every 5 minutes in dil solution until emesis occurs. *Hydrated Magnesia* as a quickly-acting purgative. *Li water* or *Charcoal* to prevent the action on the tissues. *Crude French Acid Turpenti* is the best antidote, which may be given rapidly in an emulsion of gum. *Opium* counteract the depression of the heart and system. *Transfusion* has proved effici where the blood is affected. No oils or fats should be used, as they dissolve Phosphor and promote its absorption.

THERAPEUTICS.

Phosphorus is chiefly used to promote the nutrition of osseous a nervous tissue. It is useful in chronic nervous exhaustion when the ner centres are implicated, in osteomalacia, rachitis and progressive locomot ataxia. In threatened cerebral softening it affects the nerve centres as other drug does, and in paraplegia of myelitic origin from excessive venery it is often very efficient. Progressive pernicious anæmia has sometimes been arrested by Phosphorus in very small doses, while in impotence of functional character there is no remedy so effective. In wakefulness of the aged and that due to cerebral anæmia small doses of the pill or tincture are sometimes remarkably beneficial. In certain skin diseases (acne, psoriasis, lupus), it is an excellent substitute for Arsenic. Neuralgia is often cured by Phosphorus, but large doses are necessary, at least gr. $\frac{1}{12}$ every 4 hours.

PHOSPHATE OF CALCIUM and the HYPOPHOSPHITES are used with benefit in all diseases of mal-nutrition, and where the repair or development of the bones is required. They are particularly useful in protracted suppuration, osteomalacia, rachitis, caries, scrofulosis, chronic phthisis, and in the anæmia and bone-softening of lactation. The Hypophosphites are much employed in nervous and general debility and in chronic lung diseases, and are supposed to act in the same manner as free Phosphorus, but without irritation. They are probably converted into Phosphates in the stomach, and hence may be expected to promote the growth and healing of bones, to stimulate the hepatic and intestinal secretions, and to affect the lymphatic glands and adenoid tissue. The Compound Syrup of the Hypophosphites is an excellent remedy in acne indurata.

PHOSPHATE OF SODIUM in drachm-doses thrice daily for adults, gr. x–xx for children, is extremely useful as a laxative in conditions depending on catarrh of the bile-ducts and duodenum, as headache, jaundice, chalky stools, etc. Gall-stones may be prevented from forming by scruple or drachm doses before meals for months at a time. It is also an efficient agent in obesity, hepatic diabetes, incipient hepatic sclerosis, chronic infantile diarrhœa, cerebral debility, bilious sick headache, and the pasty, white stools of ill-conditioned children. Vichy-water contains this salt in the proportion of gr. ¾ to the pint, and is considered a valuable water in hepatic colic and kindred conditions. Finally for the condition of the system producing a crop of boils, Phosphate of Sodium is probably the best remedy.

PHYSOSTIGMA, Calabar Bean,—is the seed of *Physostigma venenosum* (nat. ord. Leguminosæ), a woody creeper of Calabar, West Africa, where it is used by the natives as an ordeal for witches, etc., vomiting after its ingestion being held to establish the innocence of the accused. It is about an inch long, irregularly kidney-shaped, with two flat sides and a furrow along its convex margin ending in an aperture near one end. It contains an alkaloid, variously named *Eserine*, *Physostigmine*, and *Calabarine*, $C_{15}H_{21}N_3O_2$, which is obtained as a crystalline, an amorphous or a syrupy body. Some authorities apply the above names to different bodies, but acknowledge that they agree in physiological action, though not in physical qualities.

Preparations.

Extractum Physostigmatis,—an alcoholic extract, of which the dose is from gr. $\frac{1}{6}$ to gr. j.

Tinctura Physostigmatis,—strength 10 per cent. Dose, ♏v–xx.

Physostigminæ Salicylas, Salicylate of Physostigmine,—colorless, columnar crystals, of bitter taste and neutral reaction, soluble in 130 of water and in 12 of alcohol at 59° F. Dose, gr. $\frac{1}{100}$–$\frac{1}{60}$.

Eserina, Eserine (Unofficial),—perhaps the same as Physostigmine, but is considered as representing the powers of the plant. Dose, gr. $\frac{1}{60}$–$\frac{1}{12}$.

PHYSIOLOGICAL ACTION.

Physostigma is a direct spinal paralyzer, producing complete general paralysis, and abolished reflexes, but not affecting muscular irritability or the cerebral functions. It stimulates secretion, excites nausea and vomiting, salivation and diaphoresis, and is laxative by stimulating the muscular coat of the intestines to increased peristalsis as well as by increasing the intestinal secretions. It first lowers then raises arterial tension, increases the frequency of the heart-beat, but depresses the power of the cardiac muscle though not destroying it. It produces dyspnœa by a tetanic action on the respiratory muscles, causing carbonic acid narcosis and death by paralysis of respiration. It contracts the pupil (how, is disputed), and the ciliary muscle, producing marked myosis. It is eliminated chiefly by the kidneys, the urine of the animal affected poisoning another.

Antagonists and Incompatibles.

Atropine is antagonistic as to the effects on the respiration, heart and pupils. *Chloral* is also antagonistic and over a greater field of action, but to be effective must be administered before the ingestion of the Physostigma. The vegetable astringents, tannic acid and the caustic alkalies are chemically incompatible.

THERAPEUTICS.

The applications of Physostigma are not many. It is efficient in constipation due to torpor of the bowels, in which condition it is usually combined with Belladonna and Nux-vomica. In tetanus it has been used with advantage to diminish reflex excitability in grain-doses of the extract repeated every 2 hours and the dose modified according to the effect produced. Progressive paralysis of the insane is apparently retarded by it, and while antagonistic theoretically in atropine and strychnine poisonings, practically it is not of much value.

ESERINE is now used locally by ophthalmologists for many purposes in affections of the eye. In a solution of gr. ij to the ℥ of water dropped into the eye, it is efficient in breaking up or preventing adhesions of the iris, diminishes intraocular tension, prevents suppuration after operations, contracts the pupil, diminishing the entrance of light in photophobia, etc., and empties the vessels of the eye. It is very useful in keratitis, glaucoma, strumous ophthalmia, and neuralgia of the eye-ball. The salts of Eserine or Physostigmine in neutral solution may be used for these purposes, as well as to counteract the effects of Atropine on the pupil. Gelatin disks medicated with Eserine may be obtained in the shops, and are a convenient form in which to use the drug for ophthalmic purposes.

PHYTOLACCA, Poke,—is official under two forms, the berry and the root of *Phytolacca decandra*, a plant of the nat. ord. Phytolaccaceæ, found in all parts of the United States. It contains a neutral principle *Phytolaccin*, and an acid *Phytolaccic Acid*, also tannin, starch, fixed oil, etc. There are no official preparations.

Phytolaccæ Bacca, Poke Berry,—dark-purple, depressed globular, about ⅓ inch in diameter, composed of 10 carpels, each containing one black seed; juice purplish-red, sweet and slightly acrid.

Phytolaccæ Radix, Poke Root,—large, conical, branched, fracture fibrous, wood-bundles in concentric circles, inodorous, sweetish and acrid. **Dose**, as emetic, gr. x–xxx,—as an alterative, gr. j–v.

Preparations.

Extractum Phytolaccæ Fluidum (Unofficial),—Dose, ♏v–ʒj.
Tinctura Phytolaccæ (Unofficial),—Dose, ♏x–ʒj.

PHYSIOLOGICAL ACTION.

Phytolacca is an emeto-cathartic, acting slowly but persistently, with great nausea and considerable depression. It lowers the rate of respiration and of cardiac action, and is a motor depressant, paralyzing the spinal cord and the medulla, death occurring from paralysis of respiration, preceded by tetanic convulsions. Several cases of poisoning by this plant have occurred. Its action is antagonized by Alcohol, Ether, Opium, Digitalis, etc.

THERAPEUTICS.

Alterative powers have been ascribed to Phytolacca, and competent observers have reported curative results from its use in malignant tumors, varicose and other ulcers, obstinate eczema, sycosis, favus and other skin affections, employing it both internally and externally. It is a very serviceable remedy in chronic rheumatism, and given internally has undoubtedly cured cases of granular conjunctivitis. Mastitis is sometimes aborted and suppuration of the breasts prevented by the use of the fluid extract internally while a solid extract is locally applied to the seat of the impending inflammation. In tonsillitis and diphtheritic sore throat, also in chronic follicular pharyngitis, it has been much used with good results, especially when there is high fever and pains in the head, back and limbs. In true adynamic diphtheria it will do little good.

PICHI is the shrub *Fabiana imbricata*, a member of the nat. ord. Solanaceæ, and a native of S. America. Among the Chilians it has been much prized as a remedy in cystitis with calculi and gravel, and in chronic catarrh of the bladder. It seems to have considerable power over the hematuria and pain of renal calculus. It is also highly praised in dyspeptic disorders. Its medicinal virtues reside in oleo-resinous constituents which are insoluble in water. An extract is prepared from the leaves, of which the dose is gr. v–x in capsules. Dose of the fluid extract, ʒj, but it should not be added to water.

PICROTOXINUM, Picrotoxin, Picrotoxic Acid, $C_9H_{10}O_4$,—is a poisonous, neutral principle obtained from the seeds contained in the berries (*Cocculus Indicus*, Fish-berries), of *Anamirta paniculata* (Anamirta Cocculus, Menispermum Cocculus), a climbing shrub of the nat. ord. Menispermaceæ, a native of the East Indies. The berries are somewhat kidney-shaped, of blackish-brown color, wrinkled, brittle, inodorous and nearly tasteless, except the shrivelled embryo which is bitter. They contain, besides Picrotoxin, a large quantity of fixed oil and other substances of less interest. In the shell are found *Menispermin*, an alkaline principle, *Paramenispermin*, which is neutral and crystalline, and *Hypopicrotoxic Acid.*

PICROTOXIN occurs in colorless, flexible crystals, of prismatic form, bitter taste and neutral reaction, soluble in 150 of water and in 10 of alcohol at 59° F., also in acids and in alkaline solutions. Dose by the stomach, gr. $\frac{1}{60}$–$\frac{1}{20}$, cautiously. For hypodermic use a solution in water of gr. ij in ℥j may be used, in doses of gr. $\frac{1}{60}$–$\frac{1}{40}$ of the principle, ♏iv equalling gr. $\frac{1}{60}$.

Unofficial Preparations of Cocculus.

Tinctura Cocculi,—1 in 8. Dose, ♏ij–xv.
Extractum Cocculi Fluidum,—Dose, ♏j–iij.
Planat's Tincture of Cocculus,—1 in 4. Dose, ♏j–v.

PHYSIOLOGICAL ACTION.

Picrotoxin is a cerebro-spinal exaltant, affecting especially the centres in the medulla oblongata, and in its action representing the combined actions of Belladonna and Nux-vomica. It stimulates all the secretions, especially the cutaneous, the salivary and intestinal; produces nausea and vomiting, and slows the heart and the respiration after transiently accelerating both. It causes muscular twitching, incoördination, stupor, delirium, epileptiform convulsions, tonic spasms of the flexor muscles alternating with clonic ones, exalted reflexes and trembling,—then coma, insensibility and death by paralysis of the heart, which is arrested in diastole. The action of the drug is on the spasm and vagus centres in the medulla, and on Setchenow's inhibitory centre, as well as on the cerebellum and spinal cord, paralyzing the first-named centres and stimulating the reflex centres in the cord. It is eliminated by all the excretory channels, chiefly by the kidneys.

The spasms caused by Picrotoxin are choreic and chiefly affect the flexor muscles,—those from Strychnine are tetanic, affecting principally the extensors. The order, succession and character of the phenomena produced by Picrotoxin resemble in marked degree those of the epileptic paroxysm.

Cocculus berries are used to stupefy fish, being thrown into ponds containing them. They are also employed to adulterate beer and porter in order to make these drinks more intoxicating.

Antagonists.

Chloral is antagonistic to its cerebral and spinal actions, but synergistic to its depressant power over the heart and the respiration. *Acetic Acid* gives relief in overdosing, and may have some antidotal power. *Anæsthetics* antagonize its spasm-producing action.

THERAPEUTICS.

Picrotoxin is used chiefly in nervous diseases. Epilepsy is amenable to it, especially when the attacks are nocturnal, and in anæmic cases and those attributable to onanism. Paralyses of several forms have been greatly benefited by it, especially paralysis of the sphincters, hemiplegia from cold, glosso-labio-laryngeal paralysis, and paralysis agitans. Chorea is well treated by it but requires full doses. It is remarkably efficient in controlling the night sweats of phthisis, and in flatulent colic, also in dyspepsia with flatulence and severe epigastric pain, and in vomiting with giddiness, headache and intolerance of light and sound. Dysmenorrhœa is often benefited by Cocculus administered for two days before the period; and leucorrhœa, when the discharge is sero-purulent with lumbar pains, is frequently controlled by it. Parasitic skin diseases are well treated by an ointment of Picrotoxin (gr. x to the ℥), which will also kill pediculi, but it must be used cautiously and with special care to avoid an abraded surface. The tincture of Cocculus may be used as a wash to kill body-lice, undiluted.

PILOCARPUS, Jaborandi,—the leaflets of *Pilocarpus pennatifolius*, a Brazilian plant of the nat. ord. Rutaceæ. They are about 4 inches long, ovate-oblong, coriaceous, pellucid-punctate, mostly smooth, somewhat pungent and bitter. It contains two alkaloids,—*Pilocarpine*, $C_{11}H_{16}N_2O_2$, soft and viscous, slightly soluble in water but soluble in alcohol, ether and chloroform; *Jaborine*, isomeric with Pilocarpine, to which it is antagonistic in action; also a Volatile Oil and probably a peculiar acid.

Preparations.

Extractum Pilocarpi Fluidum,—Dose, ♏v–ʒj.

Pilocarpinæ Hydrochloras,—minute, white, deliquescent crystals, very soluble in water and in alcohol, almost insoluble in ether or chloroform. Dose, gr. $\frac{1}{8}$–$\frac{1}{2}$.

PHYSIOLOGICAL ACTION.

Pilocarpus is a paralyzer of the vaso-motor system, and a stimulant of the peripheral terminations of nerves supplying glands and involuntary muscular fibre, subsequently paralyzing the latter. It is therefore a powerful diaphoretic and sialogogue, a cardiac depressant by stimulation of the vagus ends,—also myotic, emetic, and under some circumstances abortifacient. Its taste is hot and pungent. It causes prompt and profuse perspiration (℥ix–xv, in quantity) and salivation (℥x–xxvij), after a preliminary flushing of the skin. The nasal, bronchial and lachrymal secretions are much increased; sometimes watery diarrhœa occurs; the action of the heart, at first increased, is afterwards lowered, the arterial tension is reduced, and the temperature falls from 1° to 4°. Drowsiness, pallor, chilliness and debility succeed, and last several hours; the pupil is contracted and accommodation impaired. The elimination of urea is greatly increased, but not the quantity of urine. The respiratory power is lowered, and apnœa may occur, from increase of the bronchial mucus.

Pilocarpus is rapidly diffused, and is eliminated by the skin and the salivary glands. Its effects pass off usually in from three to six hours. Children are less affected than adults, by proportionate doses. It causes contractions of the bladder, uterus and spleen, in the latter case whether the organ is enlarged or of normal size.

PILOCARPINE is the principle to which the foregoing actions are due, but JABORINE, though chemically identical, is perfectly antagonistic thereto in its effects on the heart, pupils, lungs and salivary glands, acting precisely like Atropine on these organs. The difference is probably due to a different molecular arrangement.

Antagonists and Incompatibles.

Atropine is the antagonist to Pilocarpine in dose of gr. $\frac{1}{100}$ for gr. $\frac{1}{6}$ of the latter. The antagonism between these two alkaloids extends over the whole range of their action, and is the most complete known to physiological experimentation. Conversely *Pilocarpine* is exactly antagonistic to Atropine, but *Jaborine* acts similarly to the latter drug. *Morphine* controls the nausea and vomiting. Caustic alkalies, the persalts of Iron and salts of the metals generally, are chemically incompatible.

THERAPEUTICS.

Jaborandi is used with great benefit in dropsies, especially the renal form, also in eclampsia of renal origin, in uræmia, pleuritis, meningitis and other inflammations of serous membranes, but it is contraindicated when from any cause there is weak heart. In diabetes insipidus it reduces the quantity of urine remarkably, relieving the kidneys by throwing the work on the skin. In the acute and chronic forms of Bright's disease it has been used with great advantage, but being so depressant it must be employed with great caution in this disorder. For alopecia it is the most efficient remedy known, stimulating the skin and improving the color and condition of the hair. In agalactia it stimulates the secretion of the milk, and it often gives prompt relief in parotitis. Ptyalism is frequently relieved by minute doses of Pilocarpine (gr. $\frac{1}{30}$), which acting on the same gland antagonizes the morbid action ; and similar doses used thrice daily will check profuse perspiration. The hypodermic use of Pilocarpine will arrest a paroxysm of spasmodic asthma, and is equally efficient in hiccough. Atropine-poisoning is best combated by the use of Pilocarpine hypodermically.

Ophthalmologists employ Pilocarpine with most excellent results in the amblyopia of alcoholism and that from the abuse of tobacco, in detachment of the retina, chronic iritis, keratitis, glaucoma, hemorrhage into the vitreous, atrophic choroiditis, white atrophy, to promote resolution and absorption in inflammatory conditions with exudation, and instead of Eserine as a myositic.

Erysipelas and diphtheria are diseases in which Pilocarpine has recently proved very efficient, but its depressant action on the heart and respiration must not be lost sight of. In the writer's experience the fluid extract is one of the best agents for breaking up a common cold. It may be given in doses of ♏x–ʒj, according to age, at bedtime. Children bear the drug well in respect to all its physiological actions.

PIMENTA, Allspice,—is the nearly ripe fruit of *Eugenia Pimenta*, a West Indian tree of the nat. ord. Myrtaceæ. The berries are nearly globular, about ¼ inch in diameter, crowned with the remnants of the calyx, two-celled, each cell containing one reniform seed, odor and taste pungent and aromatic. They contain a Volatile Oil which is official, a green fixed oil, fat, tannin, gum, resin, etc. Dose, gr. x–xl.

Oleum Pimentæ, the volatile oil, colorless or pale-yellow, of aromatic odor, pungent taste and slightly acid reaction. Is a constituent of Bay Rum (Spt. Myrciæ). Dose, ♏ij–vj.

Physiological Action and Therapeutics.

Allspice is a warm, aromatic stimulant, very useful as a condiment, improving digestion by increasing the vascularity of the gastric mucous membrane and by stimulating the salivary secretion. The Oil is an agreeable remedy for flatulence, nausea and intestinal colic, and is used to prevent the griping of purgatives and to cover the taste of nauseous medicines.

PIPER, Pepper, Black Pepper,—is the unripe fruit of *Piper nigrum*, or Pepper-vine, a perennial plant of the nat. ord. Piperaceæ, growing in India, Siam, Java, Borneo, etc. It is about ⅙ inch in diameter, of globular shape, reticulately wrinkled, aromatic, of pungent, spicy taste, and contains an alkaloid, *Piperine*, which is official, also a green, acrid, concrete oil, a balsamic volatile oil, starch, lignin, gum, extractive, etc. Dose, gr. v–xx.

Preparations.

Oleoresina Piperis, Oleoresin of Pepper.—contains almost all the volatile oil and acrid resin extracted by ether, with little of the Piperine. Dose, ♏¼–j.

Piperina, Piperine, $C_{17}H_{19}NO_3$,—a proximate principle of feeble alkaloidal power, prepared from Pepper, and occurring also in other plants of the natural order Piperaceæ. Occurs in colorless or pale-yellowish prisms, of neutral reaction, almost insoluble in water, slightly so in ether, but soluble in 30 of alcohol at 59° F. Dose, gr. j–x.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Pepper when applied to the skin acts as an irritant; internally its effects are similar to those of other aromatics, being a warm carminative and stimulant, increasing slightly the action of the heart, stimulating the kidneys somewhat, and toning up the mucous membrane of the urinary and intestinal passages, by which channels it is eliminated. It has been thought to possess antiperiodic powers, and was formerly much employed in intermittents. Its chief medical use is to correct flatulence, and to excite action of the stomach, being very commonly taken as a condiment with food. It is occasionally employed in gleet, but more extensively in hemorrhoids and other diseases of the rectum. Its active constituents are the concrete oil or resin and the volatile oil, the alkaloid having very slight action on the system, except as an antiperiodic and antipyretic, qualities which it certainly possesses.

PISCIDIA, Jamaica Dogwood (Unofficial), is the bark of the root of *Piscidia erythrina*, a tree of the nat. ord. Leguminosæ, growing in the West Indies. It occurs as a tough, fibrous bark, externally blackish, internally greenish, of a heavy, narcotic odor, and a bitter, acrid and astringent taste, containing a yellowish, resinoid substance named *Piscidin*. Its active principle has not yet been isolated. A fluid extract is on the market, of which the dose is ʒss–j, carefully increased.

PHYSIOLOGICAL ACTION.

Piscidia has a narcotic effect on many animals, and has been used in Jamaica for many years to stupefy fish, that they may be easily taken. It produces muscular relaxation, incoördination of movement, lowered sensibility, increased action of the heart and increase of the arterial tension by stimulation of the vaso-motor centre. Soon, however, the heart is weakened, vascular tension falls, and a tetanoid state results from stimulation of the spinal cord, with reduced reflex action. On the brain its effects resemble those of Opium, causing deep sleep without any unpleasant after sults. It relieves pain in less degree, however, than Opium does, but its pnotic action is greater. It also relieves cough and spasm, produces aphoresis and salivation, and dilates the pupil. From toxic doses death curs by asphyxia. In man it probably causes the same effects but in cidedly less marked degree.

THERAPEUTICS.

Jamaica Dogwood is used chiefly as a general nervous sedative. Its pnotic and anodyne powers are somewhat uncertain, but have in many ses been very decided. It is useful in whooping-cough and spasm, and s proved almost specific in many cases of neuralgia, while in others it s caused great gastric distress without the least anodyne effect.

PIX, Pitch,—is a resinous exudation from the stem of certain trees the genera *Pinus* (Pines) and *Abies* (Firs and Spruces); and may also obtained by the evaporation of wood-tar. [See PIX LIQUIDA below.] he following varieties are official, viz.:

Pix Burgundica, Burgundy Pitch,—the prepared, resinous exudation *Abies excelsa* or Norway Spruce (nat. ord. Coniferæ), a native of urope and Northern Asia. Occurs in hard, brittle, opaque or translu- nt mass, with a shining, conchoidal fracture, reddish-brown color, omatic and somewhat empyreumatic, not bitter, almost entirely soluble glacial acetic acid. It is very fusible, and at the body-heat it softens d becomes adhesive. Used for plasters.

Pix Canadensis, Canada or Hemlock Pitch,—the prepared resinous udation of *Abies canadensis* (nat. ord. Coniferæ), the Hemlock Spruce the U. S. and Canada. Its properties are much the same as those of e preceding.

Pix Liquida, Tar,—is an empyreumatic oleo-resin obtained by the structive distillation of the wood of *Pinus palustris* and other species Pinus (nat. ord. Coniferæ). Is thick, viscid, semi-fluid, blackish- own, of acid reaction, terebinthinate odor, and sharp, empyreumatic ste, slightly soluble in water, soluble in alcohol, oils, and in solution of otassa or of soda. By distillation it yields an acid liquor named *Pyro- gneous Acid* and an empyreumatic oil called *Oil of Tar* (see OL. PICIS IQUIDÆ, below), the residue being pitch. Its granular appearance is ue to crystals of *Pyrocatechin*, $C_6H_4(OH)_2$, which occur either in the yroligneous Acid or in the tarry mixture. Dose, ʒj–ij daily, in ten- ain doses.

Preparations.

Oleum Picis Liquidæ, Oil of Tar,—a volatile oil distilled from Tar. Dark, reddish- own (almost colorless when fresh), of tarry odor and taste and acid reaction, readily uble in alcohol. Contains a great variety of compounds, including Hydrocarbons, nols, Paraffin, etc., among the phenols being Creasote and Carbolic Acid. Is used ally and as an atomized inhalation.

Syrupus Picis Liquidæ, Syrup of Tar,—has of Tar 6 per cent., and is a sweetened Tar-water. Dose, ʒij–℥ss.

Unguentum Picis Liquidæ, Tar Ointment,—contains equal parts of Tar and Suet.

Emplastrum Picis Burgundicæ, Burgundy Pitch Plaster,—has of Burgundy Pitch 90, Yellow Wax 10 parts.

Emplastrum Picis Canadensis, Canada Pitch Plaster,—has of Canada Pitch 90, Yellow Wax 10 parts.

Emplastrum Picis cum Cantharide, Warming Plaster,—has of Burgundy Pitch 92, Cerate of Cantharides 8 parts.

Infusum Picis Liquidæ, Tar Water (Unofficial),—made by shaking Tar 1 with Water 4 frequently during 24 hours, decanting and filtering. Is stimulant and diuretic. Dose, Oj–ij daily.

Vinum Picis Liquidæ, Wine of Tar (Unofficial),—Tar ℥xvj, Glycerin, White Wine, Honey, āā ℥viij, Acetic Acid ℥j, Boiling Water Ovj, shaken together and digested in a close vessel for two hours at 150° to 160°, then macerated for a few days, frequently shaken, strained and filtered.

Oleum Pini Sylvestris, Oil of Scotch Fir (Unofficial),—a colorless, fragrant oil, distilled from the leaves of *Pinus sylvestris*, resembling Turpentine in action. Used by inhalation (ʒss to Oj of boiling water), or locally.

Concentrated Extract of Pinus Canadensis (Unofficial),—is an aqueous, non-irritant astringent, prepared from the *Abies Canadensis* or Hemlock Spruce. It is said to have a specific tonic action upon mucous membranes. Two kinds are sold, one being called the "White" Extract,—in reality a golden yellow,—and the other the "Dark" Extract,—the former intended for use when it is desirable to avoid staining the linen. This preparation received the endorsement of Dr. J. Marion Sims, and has been extensively employed both locally and internally, as a topical application in uterine and vaginal catarrhs, and as a systemic remedy in catarrhal inflammation of the gastro-intestinal and broncho-pulmonary mucous membranes.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

PITCH is a gentle rubefacient when applied to the skin, but in some constitutions the Burgundy variety causes a vesicular and pustular inflammation if used extensively. It is generally employed as a basis for plasters, and is of benefit in lumbago, rheumatism, chronic pleurisy, painful joints, superficial neuralgiæ, etc., protecting the part from variations of temperature, and perhaps by the gentle pressure exercised stimulating the lymphatics and promoting absorption. It is supposed to have a special influence on the rectum, and in pill with Tar has been employed as a remedy for hemorrhoids. In applying adhesive plasters the hair should first be shaved off, and when about to be removed the plaster should be warmed, and a little Oil of Turpentine inserted between its edge and the skin.

CANADA PITCH is too soft for plasters, but is employed for the same purposes as the preceding. A volatile oil obtained from the same tree (Oil of Spruce, Oil of Hemlock) has been used for abortifacient purposes, endangering the life of the subject.

TAR is a complex mixture of resins and hydrocarbons, containing Creasote and Carbolic Acid which give to it irritant qualities. Internally it is expectorant and produces gastro-intestinal irritation, sometimes severe headache, giddiness and febrile phenomena. It is eliminated by the kidneys chiefly, which it stimulates, and may cause their congestion and increased diuresis. Externally it is a decided stimulant to the skin

giving rise to considerable irritation and pain. It is also antiseptic,
in most of its effects it resembles the turpentines.

R is used as a local application in chronic scaly skin diseases,
ially psoriasis and chronic eczema. As an atomized inhalation it is
ecided benefit in bronchitis, pharyngitis, laryngitis and winter cough.
nally it may be employed with advantage in these affections, in
rrhoids, bronchial catarrh, and phthisis. The best preparation for
nal administration is the syrup, which is a sweetened tar-water, the
forming with the Tar a soluble compound.

LANTAGO, Plantain (Unofficial),—is the leaf of *Plantago major*,
Plantago lanceolata (nat. ord. Plantaginaceæ), the common "Ribbed
s." The pounded leaves applied as a paste, or the dry leaf powdered,
actively hemostatic, stopping hemorrhages speedily. Among the
nts it had a good reputation as a remedy for toothache and earache,
h still adheres to it in Switzerland and many other parts of Europe.
any other painful affections it is extremely efficient, especially in
itis, rhus-poisoning, erysipelas, burns, scalds, wounds and bruises. A
ice of the leaves may be applied to the affected part, and an infusion
inistered internally. A fluid extract is sold in the shops, of which
lose is ♏v–xv.

LUMBUM, Lead, Pb,—is not official, but several of its salts are,
ly,—the Acetate, Carbonate, Iodide, Nitrate and Oxide, of which
cetate is the only one administered internally, the solutions of the
etate are the only liquid preparations, the *Oxide* (Litharge) is used
nplastrum Plumbi, the *Nitrate* is used as a local stimulant or escha-
, the *Iodide* as an ointment for absorbent purposes, and the *Carbonate*
astringent locally to inflamed surfaces. The metal occurs in nature
ly as a Sulphide named *Galena*, also as an Oxide rarely, and in various
combinations.

Official Salts of Lead.

mbi Acetas, Acetate of Lead, Sugar of Lead, $Pb(C_2H_3O_2)_2.3H_2O$,—colorless,
g. prismatic crystals or scales, efflorescent, of faintly acetous odor and acid reaction,
sweetish, astringent and metallic taste. Soluble in 1.8 of water and in 8 of alcohol
F., in 0.5 of boiling water and in 1 of boiling alcohol. Dose, gr. ss–v.

mbi Carbonas, Carbonate of Lead, White Lead, $(PbCO_3)_2Pb(HO)_2$,—a heavy,
opaque powder, odorless, tasteless and insoluble in water or alcohol, but soluble
ffervescence in dilute nitric acid. Used locally as ointment, powder, or white paint.

mbi Iodidum, Iodide of Lead, PbI_2,—a heavy, bright citron-yellow powder, odor-
nd tasteless, fusible and volatilizable by heat, soluble in about 2000 of water at 59°
d in about 200 of boiling water. Used externally as an ointment. May be given
ally in doses of gr. ⅕ twice daily.

mbi Nitras, Nitrate of Lead, $Pb(NO_3)_2$,—colorless, opaque, octahedral crystals,
ss, of sweetish, astringent and metallic taste and acid reaction, soluble in 2 of water
° F., almost insoluble in alcohol. Used locally as an astringent and deodorizer in
ons up to 1 per cent., also as an escharotic and a disinfectant.

Plumbi Oxidum, Oxide of Lead, Litharge, PbO,—a heavy, yellowish or reddish-yellow powder, odorless, tasteless and insoluble in water or alcohol, but almost wholly soluble with slight effervescence in dilute nitric acid. When heated in contact with charcoal it is reduced to metallic lead. Used as Lead-Plaster and sometimes with oil as an external application.

Preparations.

Liquor Plumbi Subacetatis, Solution of Subacetate of Lead, Goulard's Extract,—an aqueous solution containing about 25 per cent. of the salt, prepared from Acetate of Lead 170, Oxide of Lead 120, and Distilled water q. s. ad 1000 parts. It is a clear, colorless liquid, of sweetish, astringent taste and alkaline reaction, of sp. gr. 1.228, and when added to a solution of acacia it produces a dense, white precipitate. Used locally as an astringent and cooling lotion, diluted usually with an equal quantity of water.

Liquor Plumbi Subacetatis Dilutus, Lead Water,—has of the preceding 3 parts to 97 of Distilled Water. Used locally as a mild astringent and cooling lotion.

Linimentum Plumbi Subacetatis,—contains of Liquor Plumbi Subacetatis 40 parts to 60 of Cotton-seed Oil. Used as an anodyne application for itching, etc.

Ceratum Plumbi Subacetatis, Goulard's Cerate,—has of the same solution 20 parts with 80 of Camphor Cerate, freshly prepared, as it becomes rancid easily. Used as an astringent and protective application.

Emplastrum Plumbi, Lead-plaster, Diachylon Plaster,—Oxide of Lead 32, Olive Oil 60, rubbed together and boiled with 10 parts of water. Is white, pliable and tenacious, free from greasiness or stickiness, and should be entirely soluble in warm oil of turpentine. A good protective in abrasions and bed-sores, and the basis of many other plasters.

Unguentum Diachylon, Diachylon Ointment,—has of Lead Plaster 60, Olive Oil 39, Oil of Lavender 1. Used locally in eczema and other cutaneous disorders.

Unguentum Plumbi Carbonatis,—has of the Carbonate in very fine powder 10, Benzoinated Lard 90. Used as a dressing for burns.

Unguentum Plumbi Iodidi,—has of the Iodide in very fine powder 10, Benzoinated Lard 90. Used locally to promote absorption of glandular tumors.

Oleatum Plumbi, Oleate of Lead (Unofficial),—a 20 per cent. solution of Oxide of Lead in Oleic Acid. A soft, yellowish ointment, for local use.

PHYSIOLOGICAL ACTIONS.

Lead-salts are all more or less poisonous, but metallic Lead is inert until converted into a soluble salt by the acids of the stomach. The Acetate in large doses is emetic, so that acute lead-poisoning is rare. Its chief phenomena are intense gastro-intestinal irritation, vomiting, paralysis, coma and collapse.

Chronic lead-poisoning (plumbism) has its principal sources in *pure* water conveyed by leaden pipes, the use of hair-dyes, handling of printing-type, working in the smelting of lead ores, etc. It produces loss of appetite, emaciation, pallor and constipation, followed by slowing of the heart's action, and accompanied by violent colic (enteralgia), muscular impairment evinced by paralysis of the extensor muscles of the forearm (drop-wrist), impaired sensibility and albuminuria. Occasionally aphonia, vertigo, gastralgia, headache, stupor and convulsions are manifested. Rheumatism without fever or tenderness in the joints, which however are red and swollen, is a frequent symptom. A blue line (sulphide) is seen along the margin of the gums in those who do not clean their teeth. Neuralgic troubles may arise, and amaurosis often occurs from impairment of the optic nerve. The metal becomes deposited in the affected muscles and other tissues, and probably acts by impairing the isolating power of the nerve-fibres, thus enfeebling the nerve-currents. It also produces conraction of the smaller vessels, and may affect any muscles of the body, lso the brain, producing delirium, coma and convulsions. Abortion is a frequent result, either through an influence on the muscular tissue of the uterus, or from a toxic action on the fœtus. Death may occur from extension of the paresis to the muscles of respiration, from gradual impairment of nutrition, or from convulsions and coma, a form of disease known as Lead-encephalopathy.

Astringency is the chief quality of the lead salts; they lessen secretion, contract muscular tissue and then destroy its contractile power, slow both the heart and the respiration, and in time destroy the red blood-corpuscles. Lead enters the blood as an albuminate, in which form also it is retained by the tissues. It is slowly excreted by the liver, kidneys, skin and mammary glands. That which escapes by the bile is reabsorbed by the bowel, is again excreted by the intestinal glands, escaping with the fæces as a sulphide. It lessens the excretion of uric acid.

Antidotes and Incompatibles.

In acute poisoning, as by the Acetate, the antidotes are Sulphate of Sodium or of Magnesium, and Phosphate of Sodium. The stomach should be evacuated, and albuminous drinks and Opium given to allay irritation. Chronic poisoning is best treated by Iodides to saturation of the system. Sulphurated Potassa baths (℥j or more in water) are also very useful. Incompatibles are mineral acids and salts, vegetable acids, alkalies, vegetable astringents, Iodide of Potassium, albuminous solutions, Opium, and all natural waters containing lime, sulphates, carbonates and Carbonic Acid.

THERAPEUTICS.

Lead salts are chiefly used as astringents and hemostatics. The solution of the Subacetate diluted with 4 parts of glycerin and water is locally employed in many skin-diseases, especially in eczema, lichen, impetigo and erythema; also in catarrhal discharges of muco-purulent character from the ear, vagina and the urethra, particularly in gonorrhœa and leucorrhœa. Inflammations of external parts are constantly treated by the otion of "Leadwater and Laudanum" (Liquor Plumbi Subacetatis Diutus, 7 parts to 1 of Tinctura Opii). Though the constituents of this otion are chemically incompatible, it is a valuable sedative and astringent. The ACETATE, in 5-grain doses every 3 hours, is an efficient internal typtic in various hemorrhages, particularly in hemoptysis, hematemesis and gastric ulcer, lowering the action of the heart and constringing the vessels. Its astringent action is well manifested in bronchorrhœa and other pulmonary affections with excessive secretion. It is well used in diarrhœas, gr. ij with gr. j of pulverized Opium in choleraic diarrhœa, and smaller doses for the summer complaint of children. In caseous pneumonia the Acetate is highly recommended as the best remedial agent, combined with Opium and Digitalis; and in cardiac hypertrophy it may be often used to lower the action of the heart. It is also serviceable in whooping-cough with profuse bronchial secretion, and in humid asthma.

Carbonate of Lead is only used externally to protect irritated surfaces, as erythema, erysipelas, intertrigo, etc., in which it may be dusted over the surface if unbroken. The official ointment, or white paint mixed with linseed oil, is an excellent application to burns or scalds, but if applied on the broken cuticle it may prove rapidly poisonous.

The Iodide is employed externally as an ointment to enlarged lymphatic glands and enlarged spleen, also to chronic eczema and psoriasis. It has been used internally to reduce a malarial spleen.

The Nitrate is an efficient application to fissured nipples, gr. x to ℥j of glycerin. In powder, dusted over unhealthy granulations, and sanious ulcers resulting from onychia, it gives prompt relief after a brief period of pain. It is said to have cured cases of epithelioma when used in the same manner. In solution (gr. x to the ℥) it is a most efficient deodorizer against the fetor from gangrenous sores, ozæna and other offensive discharges. Pharmaceutically it is used in the preparation of the Iodide.

The Oxide is used in the preparation of plasters, most of the other salts of lead, and Digitalin. It is not employed internally, but may be used as an external application mixed with sweet oil in superficial burns, but care should be taken that it is only applied to the unbroken skin.

PODOPHYLLUM, May Apple,—is the rhizome and rootlets of *Podophyllum peltatum* (Mandrake), an herbaceous perennial of the nat. ord. Berberidaceæ, growing in the woodlands of Canada and the U. S., having a pale-green stem about a foot high, with a single white flower at its summit. The rhizome is horizontal, ⅕ inch thick, consisting of joints about 2 inches long, of orange-brown color externally, white and mealy internally, inodorous, taste bitter and acrid. Its active principle is a *Resin* which is official, and is a compound of several resins. It probably contains the alkaloid *Berberine*, which is also found in Berberis, Hydrastis and several other plants. Dose, gr. v–xx.

Preparations.

Abstractum Podophylli,—Dose, gr. ¼–j.
Extractum Podophylli,—Dose, gr. v–x.
Extractum Podophylli Fluidum,—Dose, ♏ j–xxx.
Resina Podophylli, Podophyllin,—is precipitated from a concentrated tincture by acidulated water. Soluble in alkaline liquids and partly so in ether. Contains *Podophyllotoxin*, *Picropodophyllin*, *Podophyllinic* and *Protocatechuic Acids*. Dose, gr. ⅛–j, in pill.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Podophyllum is a tonic-astringent and resin-bearing purgative, having an action similar to that of Jalap but slower, like Calomel, taking 6 to 10 hours to produce its cathartic effect. It increases the intestinal secretions and the flow of bile, causing copious watery stools, with considerable riping pain and some nausea. The powder is irritant to the respiratory assages and the skin.

Resina Podophylli is an excellent purgative in cases of habitual con-ipation or portal congestion, and is a useful cholagogue. Laxative ffects are produced by small doses (gr. 1/8–1/4), but grain-doses are ecessary for its full action. It should be combined with Hyoscyamus, elladonna or Cannabis Indica, in order to counteract its griping ten-ency. It is an efficient derivative in cases of catarrhal or malarial jaun-ice, and is recommended in very small doses for prolapse of the rectum, mittent fevers of children, dyspepsia, hepatic derangement, bilious omiting and headache, and in the vomiting and diarrhœa of gastro-nteritis.

POLYGONUM HYDROPIPEROIDES, Water-pepper, mart-weed (Unofficial),—is a plant of the nat. ord. Polygonaceæ, digenous to the U. S., having narrow, lanceolated leaves and slender ikes of whitish flowers. It contains *Tannin* and an active principle, *olygonic Acid*, which is green, crystallizable, insoluble in water, but luble in alcohol, ether, and chloroform.

Preparations.

Extractum Polygoni Fluidum (Unofficial),—Dose, ♏x–ʒj.
Extractum Polygoni (Unofficial), Dose, gr. j–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Smart-weed has a pungent, acrid taste, producing a sensation of heat the stomach, and a peculiar tingling throughout the system. It stimu-tes the action of the heart, raises the arterial tension, increases the armth of the surface, promotes the cutaneous, bronchial and renal secre-ons and the menstrual flow. It is an efficient diuretic, emmenagogue nd aphrodisiac. The juice applied to the skin excites inflammation and sication.

Amenorrhœa from functional inactivity of the uterine system is remark-bly benefited by this remedy in ʒss doses of the fluid extract four times aily for a week before the expected period. It has considerable influ-nce over functional impotence, but produces aching pains in the hips and ins, and a sense of weight and fullness within the pelvis. It has also een used with benefit in diarrhœa, dysentery, gravel, and locally in mer-urial salivation and the sore mouth of nursing women.

PONGAMIA, Kurung Oil (Unofficial), is a yellow oil expressed from the seeds of *Pongamia glabra*, an Indian tree of the nat. ord. Legu-minosæ. It has been used for many years in India for skin affections, and in professional hands has proven an excellent application in pityriasis versicolor, rubbed in twice daily. It promises to be a valuable remedy in parasitic diseases of the skin, is not irritating and does not discolor the surface to which it is applied.

POTASSIUM, Kalium, K,—is represented by a number of official salts, which are colorless or white, sometimes anhydrous, and generally readily soluble in water. The metal itself is not official. The chief source of its salts is the ash remaining after the combustion of plants or trees, which contains the Carbonate, from which most of the others are prepared. There are also two subsidiary sources, viz.—the Nitrate, which is found native; and the Bitartrate, which, under the name of Crude Tartar or Argol, is deposited during the fermentation of wine. It is distinguished from all other bases (except Magnesium, Sodium and Ammonium) by not being precipitated by Ammonium Sulphide or Ammonium Carbonate. It is positively known by the violet color it imparts to flame, by its very sparing solubility when converted into the Bitartrate, and by its precipitation by Platinum Perchloride.

Potassium Compounds and their Preparations.

Potassa, Potassium Hydrate, Caustic Potash, KHO,—a very deliquescent, white, hard and dry solid, of very acrid and caustic taste and strongly alkaline reaction, soluble in 0.5 of water and in 2 of alcohol. It is a powerful and deeply-acting escharotic, and should be kept in well-stoppered bottles made of hard glass.

Potassa cum Calce, Potassa with Lime, Vienna Paste,—a grayish-white, deliquescent powder, consisting of equal parts of Potassa and Lime rubbed together. A milder and more manageable caustic than the preceding.

Liquor Potassæ, Solution of Potassa,—contains about 5 per cent. of Potassium Hydrate, and is prepared by dissolving 90 parts of Potassium Bicarbonate in 400 of Distilled Water, 40 of Lime in the same quantity of Distilled Water, boiling, mixing the solutions gradually, again boiling, and when cold adding Water up to 1000 parts, straining, settling, and decanting the clear solution. Or, by dissolving 56 of Potassa in 944 of Distilled Water. Is a clear, colorless, odorless liquid of acrid and caustic taste, and strongly alkaline reaction. Dose, ♏v–ʒss, well diluted with water.

Potassii Acetas, Acetate of Potassium, $KC_2H_3O_2$,—a white, satiny, crystalline mass, or a granular powder, very deliquescent, odorless, of pungent, saline taste, and a neutral or faintly alkaline reaction, soluble in 0.4 of water and in 2.5 of alcohol at 59° F. Dose, gr. v–ʒj.

Potassii Carbonas, Carbonate of Potassium, $(K_2CO_3)_2.3H_2O$,—a white, crystalline or granular powder, very deliquescent, odorless, of alkaline taste and reaction, soluble in 1 of water at 59° F., insoluble in alcohol. Is a constituent of Unguentum Sulphuris Alkalinum. Dose, gr. ij–xx.

Potassii Bicarbonas, Bicarbonate of Potassium, $KHCO_3$,—colorless prisms of saline and alkaline taste and alkaline reaction, soluble in 3.2 of water at 59° F., decomposed by boiling water, almost insoluble in alcohol. Dose, gr. v–xxx.

Potassii Chloras, Chlorate of Potassium, $KClO_3$,—colorless prisms or plates, of pearly lustre, of cooling, saline taste and neutral reaction, soluble in 16.5 of water at 59° F. and in 2 of boiling water; slightly soluble in alcohol. It should not be triturated with readily oxidizable or combustible substances, nor combined with glycerin in the presence of a free acid. Dose, gr. v–xx.

Trochisci Potassii Chloratis,—each troche contains gr. v of Potassium Chlorate, with Sugar, Tragacanth and Spirit of Lemon. Dose, j–iij, slowly dissolved in the mouth.

Potassii Citras, Citrate of Potassium, $K_3C_6H_5O_7.H_2O$,—a white, granular, deliq cent powder, of cooling, alkaline taste, and a neutral or faintly alkaline reaction, soluble in 0.6 of water at 59° F., slightly soluble in alcohol. Dose, gr. x–xxx.

Liquor Potassii Citratis,—contains about 9 per cent. of the salt, with some free Citric Acid and Carbonic Acid gas. Prepared by dissolving 6 of Citric Acid and 8 of Potassium Bicarbonate each in 40 of water, filtering and adding to the filters in each case enough water to bring to 50 parts, then mixing the two solutions. Dose, ℥ss – ℥j.

Mistura Potassii Citratis, Neutral Mixture,—Lemon-juice, fresh and strained 100, Bicarbonate of Potassium about 10 parts or enough to neutralize the Lemon-juice. Should be freshly made. Dose, ℥ss – ℥j.

Potassii Nitras, Nitrate of Potassium, Saltpetre, Nitre, KNO_3,—colorless, transparent prisms or a crystalline powder, of pungent, cooling and saline taste and neutral reaction; soluble in 4 of water at 59° F. and in 0.4 of boiling water; almost insoluble in alcohol. Is a constituent of Argenti Nitras Dilutus. Dose, gr. v–xx, well diluted.

Charta Potassii Nitratis, Nitrate of Potassium Paper,—is unsized paper immersed in a solution of 20 parts of the salt in 80 of distilled water, and dried. Used for inhalation, the fumes from the burning paper being inhaled in asthma.

Potassii Sulphas, Sulphate of Potassium, K_2SO_4,—colorless, hard, rhombic prisms, of sharp, saline and bitter taste and neutral reaction, soluble in 9 of water at 59° F., and in 4 of boiling water, insoluble in alcohol. Dose, gr. xx – ℥ss, well diluted.

Potassii Tartras, Tartrate of Potassium $(K_2C_4H_4O_6)_2.H_2O$,—small, transparent crystals, or a white powder, somewhat deliquescent, of saline. bitter taste, and neutral reaction, soluble in 0.7 of water, almost insoluble in alcohol. Dose, gr. xx – ℥ss.

Potassii Bitartras, Bitartrate of Potassium, Acid Tartrate of Potash, Creamor Tartar, Cream of Tartar, $KHC_4H_4O_6$,—colorless rhombic crystals, or a white, gritty powder, of acidulous taste and acid reaction; soluble in 210 of water at 59° F., and in 15 of boiling water, very slightly soluble in alcohol. Is a constituent of Pulvis Jalapæ Compositus. Dose, gr. xx– ℥ss.

Potassii et Sodii Tartras, Tartrate of Potassium and Sodium, Rochelle Salt,—$KNaC_4H_4O_6.4H_2O$,—colorless, rhombic crystals, or a white powder, of cooling and slightly saline and bitter taste, and neutral reaction; soluble in 2.5 of water at 59° F., very soluble in boiling water, almost insoluble in alcohol. Is a constituent of the following preparation. Dose, ℥ss–j.

Pulvis Effervescens Compositus, Compound Effervescing Powder, Seidlitz Powder,—each has of the preceding salt 120 grains, of Sodium Bicarbonate 40 grains, mixed in one paper; and of Tartaric Acid 35 grains in another paper. Dose, 1 or 2 pair, dissolved separately in water and the solutions poured together.

Potassii Silicas, Silicate of Potassium, Soluble Glass, K_2SiO_3 (Unofficial),—is used in solution of a syrupy consistence for the preparation of immovable dressings for fractured limbs, etc. (See under SILICATES.)

[The *Arsenite of Potassium* is described under ARSENIC, page 116;—the *Bromide* under BROMUM, page 133;—the *Bichromate* under ACIDUM CHROMICUM, page 62;—the *Iodide* under IODUM, page 252;—the *Cyanide* and *Ferrocyanide* under ACIDUM HYDROCYANICUM, page 67; the *Hypophosphite* under PHOSPHORUS, page 305;—the *Permanganate* under MANGANUM, page 274;—the *Sulphite* under ACIDUM SULPHUROSUM, page 73;—the *Nitrite* under AMYL NITRIS, page 98;—and *Sulphurated Potassa* under SULPHUR.]

PHYSIOLOGICAL ACTION.

CAUSTIC POTASH, like other caustic alkalies, destroys the tissues by combining with their water, dissolving the albumen and saponifying the fats, and converting the tissue to which it is applied into a moist, gray slough, with considerable surrounding inflammation. Internally it acts as a powerful corrosive poison, destroying the mucous membrane of the parts with which it comes in contact, and giving rise to intense pain, diarrhœa, convulsions and delirium. Unless speedily rejected or neutralized it causes death from inflammation of the larynx, the gastro-intestinal lesions, or after some time from stricture of the œsophagus. LIQUOR POTASSÆ, containing over 5 per cent. of the pure Potash, possesses in a degree the same caustic properties, and should never be administered undiluted. It neutralizes the acids in the stomach, and in the blood exists chiefly as the Carbonate, being eliminated with the urine, which it renders alkaline. If its use be continued too long it impairs the blood, and renders the subject anæmic.

POTASSIUM SALTS in large doses are cardiac poisons, muscular paralyzers, poisonous to protoplasm, especially nerve-tissue, and destructive to the ozonizing function of the blood. They increase the saliva, promote oxidation and stimulate retrograde metamorphosis; and are therefore waste-producers. In small doses on an empty stomach they promote the formation of acid gastric juice by favoring the outward osmosis of its constituents from the blood; in larger doses they act chemically on the stomach contents, neutralizing its free acids, and disordering digestion. The BICARBONATE, given on an empty stomach, enters the blood unchanged, meets the neutral phosphate of sodium and is decomposed, acid phosphate of sodium being formed, which renders the urine more acid. On a full stomach it is decomposed by the acids of the gastric juice, increases the alkalinity of the blood and makes the urine less acid. The SALTS OF POTASSIUM WITH VEGETABLE ACIDS (Acetate, Citrate, Tartrate, etc.) enter the blood in their own form, are there decomposed, forming free CO_2, and are converted into alkaline carbonates, in which form they are eliminated, alkalinizing the blood and the urine. They are diuretics also, increasing the urinary water and solids, but decreasing the uric acid by causing increased oxidation. The MINERAL SALTS (Nitrate, Chlorate, etc.) are not decomposed in the blood, but are eliminated in their own form, the Nitrate being a most active diuretic, the Chlorate irritating the kidneys, depressing the heart, causing albuminuria, and impairing the ozonizing function of the blood. In large doses these salts decompose the red blood-corpuscles and paralyze the motor ganglia of the heart. The Chlorate does not part with its oxygen in the system, as generally believed. The SULPHATE is chiefly purgative in its action, but acts harshly, and in overdoses has caused death.

[The action of the remaining Potassium salts is described under the titles of their acid and other constituents, to which their effects are chiefly referable.]

Antagonists and Incompatibles.

Poisoning by caustic alkalies is treated by the dilute Vegetable Acids, as vinegar, cider, lemon-juice;—then demulcent drinks and oils to protect the mucous membrane, and the usual measures to support vitality. The alkalies and their carbonates are incompatible with the acids and also with metallic salts, and the caustic alkalies decompose most of the alkaloids.

THERAPEUTICS.

CAUSTIC POTASH is used locally to destroy morbid or cicatricial tissue, to cauterize the wounds resulting from bites of animals or stings of insects, to form issues or to open deep-seated abscesses, and to destroy chancres malignant pustules, nævi, warts, etc. Its action is deep and severe, and it is best employed in the form of Potassa cum Calce, which is far more manageable.

Liquor Potassæ is used internally as a free alkali to neutralize excess of acid in the stomach, blood and secretions, as an antilithic in the uric acid diathesis, also for acne, boils, and obesity. Locally it is employed to soften the nail in in-growing toe-nail, and diluted to relieve pruritus and remove scales in various skin-diseases. In small doses with a vegetable bitter tonic before meals it acts well in atonic dyspepsia, increasing the flow of the gastric juice by direct stimulation of the gastric mucous membrane. If given after meals in acid dyspepsia large doses are necessary for temporary alleviation by neutralizing the food acids. These remarks concerning acidity and dyspepsia apply equally well to the Bicarbonate, which is used for the same purpose, and while possessing all the virtues of the potassium salts, is without any corrosive or irritant action. It is also useful in simple gastralgia or cardialgia; and in cystitis, gonorrhœa, etc., where there is acid urine, it renders the urine less irritating and soothes the inflamed surfaces. Acute and chronic rheumatism and rheumatoid arthritis are much benefited by an alkaline treatment in patients of sufficient bodily vigor to stand its lowering effects. The Bicarbonate is also used to alkalinize the blood and secretions in lithæmia, jaundice, many cutaneous eruptions, and in diabetes; also locally as a lotion for fetid perspiration of the feet and axillæ, acne and acute eczema. The Carbonate is diuretic, antacid and antilithic, but is seldom used internally, being too irritant, and the Bicarbonate having all its virtues without its objectionable qualities. Locally a solution (ʒj to the ℥) is said to be effectual as a remedy for pruritus vulvæ, and one of half the above strength is used in freckles, sunburn and tan of the epidermis, in moist eczema and the itching of urticaria.

The Acetate, Citrate and Tartrate are good purgatives in doses of ʒij to ʒiv, and in smaller doses are much employed as alkalinizers of the blood and urine, diuretics, etc. Of these vegetable potassium salts the Acetate is the most certain diuretic, the Bitartrate is the most active cathartic, while the Citrate is the most reliable diaphoretic and the best agent to use to alkalinize the urine for any length of time, it having the least injurious effect on the blood or on the digestion. In lithæmia these salts are given to promote oxidation, and by keeping the urine alkaline they may reduce small calculi of the uric acid variety. In acute rheumatism and fevers they act as antacids in the blood, as febrifuges by promoting diaphoresis, and as sedatives to the general nervous system. As an agreeable laxative no preparation surpasses the Bitartrate in 2 to 4 drachm doses made into a paste with orange marmalade or any other conserve. It is also used in Infusion of Juniper as a diuretic in general cardiac dropsy, and without the Juniper in acute desquamative nephritis.

Potassium Chlorate is much employed locally in solution (ʒss to the ℥) as a deodorizer and detergent wash in inflamed, ulcerated and aphthous conditions of the mouth. On unhealthy mucous membranes generally it exercises an alterative action for the better, but if too long used it will keep up a state of chronic irritation. In mercurial salivation it is of great benefit, and in dilute solution (gr. x to the ℥) it is an efficient application to unhealthy sores and ulcers, as a wash for foul sinuses or cavities, and as an injection in chronic affections of the bladder. The powdered salt may be applied to aphthæ, and dusted over epithelioma will alter the action, diminish the pain, check the growth and promote cicatrization. Internally this salt has been administered in the mistaken idea that it parts with its oxygen in the system, but it is now shown that it is excreted unchanged. Setting up congestion and irritation of the kidneys it is highly dangerous in large doses or if used for any length of time, but is constantly administered in diphtheria, chronic bronchitis, purpura, hematuria, ovarian tumor, pseudo-membranous laryngitis, scarlatina, typhoid fever, chronic cystitis, etc. When used internally it should be given in small doses (gr. xx in 24 hours for an infant, gr. xxx in 24 hours for a child of 2 to 4 years, and ʒiss for an adult in the same time), and the action of the heart and the kidneys should be carefully watched. It should never be prescribed with the Iodide of Potassium lest the poisonous Iodate be formed, nor with the Syrup of the Iodide of Iron, lest it liberate the Iodine, and cause severe gastritis. Strong acids and acid sulphates decompose it, and it forms explosive compounds with easily oxidizable substances as Sugar, Sulphur, Tannin, Sodium or Potassium Hypophosphites, Catechu, Glycerin, etc.

For the combination of the Chlorate of Potassium with the Tincture of the Chloride of Iron, as a gargle, see *ante*, page 173, under Chlorum.

Potassium Nitrate has been much employed as a refrigerant diaphoretic and diuretic in febrile and inflammatory affections, especially in inflammation of the trachea and bronchi, pneumonia and rheumatism, but its action is uncertain and it is now giving place in these disorders to more efficient agents. The fumes of burning nitre paper (Charta Potassii Nitratis) are a useful inhalation in some forms of spasmodic asthma.

Potassium Sulphate is used in teaspoonful doses in water as an hepatic stimulant and a mild cathartic, increasing the secretions of the intestinal glandular apparatus. Its action is sometimes harsh, and death has resulted from overdoses.

The Tartrate of Potassium and Sodium, or Rochelle Salt, is the chief aperient agent in Seidlitz Powders. In doses of ʒss–j it is a gentle and cooling laxative, and in drachm doses frequently repeated it is used to render the urine alkaline, and as an antilithic.

[The uses of the other Potassium Salts are described as noted on page 323.]

PRINOS, Black Alder,—is the bark of *Prinos verticillatus* or Win-
er-berry, a shrub of the nat. ord. Aquifoliaceæ, indigenous in Canada and
he U. S., having small, white flowers, and a globose, six-seeded, bright-
ed berry, which grows in clusters and is persistent all winter. The bark
ccurs in thin, slender fragments, of a brownish-ash color externally, and
pale-green or yellow internally; taste bitter and slightly astringent. It
ontains an amorphous, yellow and bitter principle, also tannin, sugar,
tarch, wax, resin, etc. There are no official preparations, but the bark
ay be given in substance in doses of ʒss, or a decoction (ʒij in Oiij
oiled to a quart) in doses of ℥j–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Black Alder is astringent and tonic, and has been used in intermittent
ver, diarrhœa, and chronic cutaneous diseases. In the latter class of
sorders it may be applied locally.

PRUNUM, Prune,—is the fruit of *Prunus domestica*, the Plum
ee (nat. ord. Rosaceæ), indigenous to Western Asia, but cultivated in
ost countries of temperate climate. The dried fruit (Prune) is oblong,
rivelled, of blackish-blue color, having an almond-shaped seed. Prunes
ntain sugar, pectin, albumen, malic acid and salts. They are a constitu-
t of Confectio Sennæ.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Prunes are laxative and nutritious, and are freely used as a food and
eetmeat, but in excess may give rise to flatulent colic from the indiges-
ility of their skins. Stewed Prunes is an excellent dish for constipation
children, and may be made more effective by the addition of a little
nna.

PRUNUS VIRGINIANA, Wild Cherry,—is the bark of
unus serotina, or Wild Cherry, a large forest tree of the nat. ord.
osaceæ, growing in Canada and the U. S. The bark should be col-
ted in autumn from the large branches only, and comes in curved
eces $\frac{1}{12}$ inch or more thick, of greenish or yellowish-brown color exter-
lly, and astringent, aromatic and bitter taste. On maceration in water
develops a distinct odor of bitter almonds. It contains tannin, gallic
id, resin, starch, etc., also *Amygdalin* and *Emulsin*, which by their
utual reaction in the presence of water, produce *Hydrocyanic Acid* and
Volatile Oil resembling that of Bitter Almond. [See *ante*, AMYGDALA,
ge 97, and ACIDUM HYDROCYANICUM, page 67.] Dose of the powdered
rk, ʒss–j.

Preparations.

Extractum Pruni Virginianæ Fluidum,—Dose, ʒss–j.

Infusum Pruni Virginianæ,—4 per cent. Dose, ℥ss–ij. Should be made with cold water.

Syrupus Pruni Virginianæ,—12 per cent. Dose, ʒj–iv.

PHYSIOLOGICAL ACTION.

Wild Cherry is an aromatic bitter tonic, increases appetite, aiding digestion, and thus promoting constructive metamorphosis. The presence of a volatile oil gives it a local stimulating action on the alimentary canal in common with Serpentaria, Cascarilla and other members of the same class. Hydrocyanic Acid being yielded by it in the presence of cold water, results in imparting a sedative action to its preparations, calming irritation and diminishing nervous excitability. Very large doses reduce the action of the heart.

THERAPEUTICS.

The preparations of Wild Cherry are used in catarrhal conditions of the bronchial mucous membrane, in the hectic of phthisis and scrofula, palpitation of the heart, and debilitated stomach, a collection of symptoms often observed in consumptive subjects, to whom it is a very useful palliative. Cough is supposed to be especially amenable to its influence, and hence it has become a matter of daily routine to prescribe the syrup as an ingredient of cough-mixtures. The infusion is an excellent stomachic tonic, and may be administered with great benefit in dyspepsia and in convalescence from acute disease.

PULSATILLA, Pasque-flower, Meadow Anemone,—is the herb, collected soon after flowering, of *Anemone Pulsatilla* and *Anemone pratensis* (Pulsatilla nigricans), and of *Anemone patens* (Pulsatilla Nuttalliana), small herbal plants of the same natural order (Ranunculaceæ) to which Aconite belongs. The first-named species inhabit Europe and Siberia, and have large, purple flowers; the last-named is an inhabitant of the United States, and sometimes has whitish-colored flowers; all are inodorous and very acrid. Pulsatilla contains a very acrid yellow oil, which in the presence of water is gradually changed to *Anemonin*, $C_{15}H_{12}O_6$, a volatile, crystallizable, camphoraceous principle, soluble in chloroform, nearly insoluble in ether or water; and *Anemonic Acid*, $C_{15}H_{14}O_7$, a white, crystalline, tasteless powder, which may be formed also by the action of alkalies on Anemonin.

There are no official preparations, but a tincture may be made according to the pharmacopœial directions for Tincturæ Herbarum Recentium (1 in 2), of which the dose is ♏$\frac{1}{10}$–♏x. The imported homœopathic tincture has equal parts of the expressed juice and alcohol, and is generally a very good preparation.

ANEMONINUM, Anemonin (Unofficial),—the active principle. Dose, gr. $\frac{1}{10}$–ij in pill.

PHYSIOLOGICAL ACTION.

Pulsatilla is a local irritant, the fresh juice producing numbness and gling in the part to which it is applied, and may excite violent inflamtion of the skin with vesicular or pustular eruption, and if swallowed ere irritation of the gastro-intestinal mucous membrane. On the gue it produces symptoms like those from Aconite, viz.—tingling and rning, followed by numbness. Internally it lowers the heart and erial tension, reduces respiration and temperature, dilates the pupils, oduces nausea and vomiting, diaphoresis and diuresis, and paralyzes otion and sensibility. Stupor, coma and convulsions may be caused by toxic dose. Most of these effects have been observed on rabbits. The tive principle (Anemonin) is volatile, hence the herb must be fresh to suitable for medicinal use.

Antagonists and Incompatibles.

Alcohol, Opium and Digitalis are the physiological antagonists. Incompatibles are caustic alkalies, Tannic Acid and the metallic salts.

THERAPEUTICS.

Pulsatilla is a very efficient remedy if a fresh preparation be employed. was highly praised by Störck for amenorrhœa, corneal opacities, catact, paralyses, rheumatism, old ulcers, constitutional syphilis and scaly in diseases. On the generative organs it seems to have a specific action, d is an excellent remedy in functional amenorrhœa, dysmenorrhœa, enstrual suppression from fright or chill, leucorrhœal discharges with ck-pains and nervous depression. Epididymitis and orchitis are often ntrolled and even dissipated by very small doses (♏ $\frac{1}{10}$–¼) every 2 ours. It quickly relieves dyspepsia or subacute gastritis, with whiteated tongue, no taste or a greasy sensation in the palate, nausea, flatunce, heartburn, etc. Many acute inflammations of mucous surfaces ith mucous or muco-purulent discharges, as coryza, otitis (externa and terna), rhinitis, bronchitis, conjunctivitis, etc., are greatly benefited by to 10-drop doses every 4 hours and locally ʒj–ij of tincture to ℥iv ater as a lotion. A similar use of this remedy has proven of great bene- in many cutaneous affections, especially eczematous eruptions, syphiles, and ulcers of indolent character. It is also said to be efficiently ployed in acute cerebral and spinal meningitis, subacute rheumatism the small joints, rheumatic gout, chronic vesical and nasal catarrhs, tro-enteric symptoms of remittent fever and measles, ophthalmia neonaum, strumous ophthalmia with profuse but bland discharge, acute and acute inflammations of the middle ear, and in left-sided clavus, hemiia and inframammary pain. An extract of the root has proved effit against tapeworm.

oughs which are loose by day but dry and tickling on lying down at night are greatly benefited by Pulsatilla, and Anemonin in doses of gr. ½–j has been found extremely useful in whooping-cough and other coughs of irritative character.

PYRETHRUM, Pellitory,—is the root of *Anacyclus Pyrethrum*, a plant of the nat. ord. Compositæ, native of Northern Africa, but cultivated in Europe. The root is 2 to 4 inches long, ½ inch thick, annulate above, wrinkled below, externally a dark grayish-brown, internally brownish-white; the bark thick, containing two circles of resin-cells surrounding slender wood-bundles and medullary rays; inodorous, pungent and acrid. It contains an alkaloid *Pyrethrine*, also inulin, tannin, mucilage, etc., with a brown *Resin* and two fixed oils. Dose, as a masticatory, ʒss–j.

Pyrethrum Roseum, *Persian Pellitory* (Unofficial),—is indigenous to Western Asia, and resembles Chamomile in appearance. The flower-heads are used in powder to kill insects, 4 grains killing a fly in a vial in 2 or 3 minutes.

Preparation.

Tinctura Pyrethri,—20 per cent. Not used internally.

Physiological Action.

Pellitory is an irritant sialogogue. When chewed it causes a pricking sensation in the tongue and fauces with heat, acridity, pungency and a copious flow of saliva and buccal mucus. Large doses may cause bloody diarrhœa, tetanoid spasms, accelerated pulse, and profound stupor. Applied to the skin it acts as a rubefacient, the powder inhaled as a sternutatory. It stimulates the local nerves and vessels of the mouth and salivary glands by direct irritant action, but soon depresses the nerves and blunts their sensibility.

Therapeutics.

Pellitory is chewed as a masticatory and sialogogue in paralysis of the tongue, rheumatic and neuralgic affections of the head and face, and pain from carious teeth. Its powder has been recommended as a sternutatory in chronic catarrh of the frontal sinuses. As a gargle or lotion (ʒii–℥j to Oj) it is very useful for relaxed uvula and as a mouth-wash. When used for toothache a few drops of the tincture should be inserted into the cavity on cotton or wool. Used as a sialogogue it is an efficient agent to secure the rapid elimination of Iodine from the system in chronic poisoning thereby.

QUASSIA,—is the wood of *Picræna excelsa*, a large tree of the nat. ord. Simarubaceæ, indigenous to Jamaica and other West Indian islands. Surinam Quassia, used in Europe, is the wood of *Quassia amara*. Both rieties, as met with in the shops, are in the form of chips or raspings, a yellowish-white color, inodorous but of intensely bitter taste. The od is also turned into cups, which are sold under the name of quassia- bitter-cups. It contains a bitter principle, *Quassin*, $C_{31}H_{42}O_9$, which is ystalline, soluble in hot alcohol and in chloroform, slowly in cold water, ter in alkaline or acidulated water. Dose of the powdered wood, gr. –xxx.

Preparations.

Extractum Quassiæ,—aqueous. Dose, gr. j–iij.
Extractum Quassiæ Fluidum,—Dose, ʒ ss–j.
Tinctura Quassiæ,—strength 10 per cent. Dose, ♏v–ʒj.
Infusum Quassiæ (Unofficial),—made with cold water ℥x, Quassia-chips ʒj, macerated ½ hour and strained. Or water poured into a quassia-cup and left standing will give ood infusion. Dose, ℥j–iij.

PHYSIOLOGICAL ACTION.

Quassia is a simple bitter, having no flavor, but is intensely bitter and s agreeable than either Gentian or Chiretta. It is fatal to flies and fish, d makes an excellent anthelmintic enema against the thread-worm. A ncentrated preparation is poisonous to rabbits and dogs, and has pro- ced very alarming narcotic symptoms in a four-year old child. As usually ministered its action is that of a bitter stomachic tonic, as described der CALUMBA (see *ante*, page 145).

THERAPEUTICS.

The preparations of Quassia contain no tannin and hence may be pre- ribed with salts of Iron. It is chiefly employed in atonic dyspepsia with in after eating, and vomiting or regurgitation of food, also in atonic arrhœa depending on indigestion or an irritable condition of the intesti- l mucous membrane. It is useful in convalescence to promote the petite and digestion, and with Sodium Bicarbonate in gastric vertigo. s an enema the strong infusion is an effective remedy for ascarides of the ctum. It has been used as a feeble antiperiodic, and in hysteria its pulsiveness is an aid to its medicinal action.

QUEBRACHO (Unofficial),—is the bark of *Aspidosperma Que- acho*, a large evergreen tree of the nat. ord. Apocynaceæ, growing in hili and the Argentine Republic. The name is one given in S. America any very hard wood (*quebrar hacho*, to break the axe), and the par- ular tree above named is known as *Quebracho blanco*, from the white lor of its wood. It contains several alkaloids, no one of which repre- ts the action of the bark itself; the most important being *Aspidosper- ne*, $C_{22}H_{30}N_2O_2$, and *Quebrashine*, $C_{21}H_{26}N_2O_3$. Several false Quebrachos found on the market, that most frequently seen being the bark of

Loxopterygium Lorentzii, or *Quebracho colorado*, an Argentine tree of the order Terebinthaceæ.

Preparations.

Tinctura Quebracho (Unofficial),—20 per cent. Dose, ʒj–℥ss.
Extractum Quebracho Fluidum (Unofficial),—Dose, ♏v–ʒj.
Vinum Quebracho (Unofficial),—Quebracho 1, Alcohol 2, White Wine 16 parts. Dose, ʒj–℥j.
Extractum Quebracho (Unofficial),—Dose, gr. ij–viij.

PHYSIOLOGICAL ACTION.

QUEBRACHO is a bitter tonic of disagreeable taste, promoting appetite and increasing digestion. It lowers the action of the heart, reduces arterial tension, and slows respiration, also decreasing the sensation of need of air after active exercise. In large doses it causes severe salivation, nausea, vomiting, vertigo and headache. In animals it paralyzes the motor nervous system and lowers the reflexes, producing great dyspnœa and finally death apparently from asphyxia.

ASPIDOSPERMINE is actively poisonous to the respiratory apparatus and circulation in both cold- and warm-blooded animals, in the former the respiration being chiefly affected, in the latter the motor ganglia of the heart. Lowered temperature, dyspnœa, stupor and convulsions occur before death.

THERAPEUTICS.

QUEBRACHO has long been used in Chili as an antiperiodic, a stomachic tonic, and a remedy for dyspnœa. In the latter condition it is reported to be remarkably palliative, especially when due to emphysema, uræmic and spasmodic asthma, spasmodic cough and chronic bronchitis. It is not efficient in dyspnœa from organic disease of the heart, nor in that of aged subjects of atheroma.

ASPIDOSPERMINE has been used as an antipyretic, also in cardiac neuroses and in asthma. Its salts are freely soluble in water, but the alkaloid itself is only soluble in oils and fats, 6 to 8 parts being readily incorporated with 100 of cod-liver oil by the aid of heat. Its average dose is gr. j–ij.

QUERCUS ALBA, White Oak,—is the bark of *Quercus alba*, the White-oak tree (nat. ord. Capuliferæ), and occurs in nearly flat pieces deprived of the corky layer, of pale-brown color, tan-like odor, and strongly astringent taste; or as a coarse, fibrous powder, which does not tinge the saliva yellow. It contains a variety of Tannin named *Quercitannic Acid*, $C_{28}H_{24}O_{12}$, also *Pectin* and a bitter principle named *Quercin*, but no Gallic Acid. There are no official preparations, but a decoction (℥j ad Oj) may be used in doses of ℥ss–j.

Tinctoria, Black Oak Bark,—was formerly official. It contains a coloring
uercitrin, which stains the saliva yellow when the bark is chewed, also *Quer-
cid*, etc.
Lusitanica is the source of Galls (see *ante*, GALLA, page 223).

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

rk is astringent and tonic, but is seldom used internally. Its
d uses are those of Tannic Acid (see *ante*, page 74). The decoc-
uch used in country practice as a cheap astringent application or
in leucorrhœa, prolapsus ani, hemorrhoids, etc,, and as a gargle
inflammation and prolapsed uvula. It has also been used as an
into dropsical cysts, and as a lotion for flabby ulcers and suppu-
unds. The powdered bark as a poultice has proved an excellent
on in gangrene, and in finely pulverized state it is a useful ingre-
ooth-powders. A concentrated fluid extract is used in the Hea-
en operation for the radical cure of hernia, by injection into the
ound the margin of the ring, with the object of exciting inflam-
nd occlusion of the opening.

LAIA, Soap-Bark,—is the inner bark of *Quillaia Saponaria*,
the nat. ord. Rosaceæ, indigenous to Peru and Chili. It occurs
flat pieces, about ⅕ inch thick, of a brownish-white color exter-
y acrid and sternutatory, but inodorous. It contains Calcium
crystals, starch, and the glucoside, *Saponin*, $C_{32}H_{54}O_{18}$, a white,
us, sternutatory powder, soluble in water and in dilute alcohol.
no official preparations, but a tincture may be prepared by ex-
one part of the bark with sufficient dilute alcohol to make 5 parts
e.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

IA in powder is sternutatory and causes the water in which it is
d to froth, making emulsions of oils, and being used instead of
ashing purposes in various affections of the skin, and to stimu-
rowth of the hair in alopecia. Its properties are due to the glu-
PONIN, which is found also in Senega and in a number of other
d is a violent irritant of the respiratory passages, a local anæs-
antipyretic, a powerful paralyzant of the heart and respiration,
son to the voluntary muscles. It has not been made use of in
medicine.

ction of the bark (5 to 200) has been employed in doses of ʒj–ij
to age, as a substitute for Senega in the treatment of diseases of
atory organs where a pleasant expectorant is indicated. Its ex-
properties are well established, and children take it readily. It
provoke diarrhœa or vomiting, and has a sweetish, agreeable

RESINA, Resin, Rosin, Colophony, $C_{44}H_{62}O_4$,—is the residue left after distilling off the volatile oil from Turpentine. It is a transparent, amber-colored substance, of sp. gr. 1.070 to 1.080, hard and brittle, with a glossy and shallow conchoidal fracture, and a faintly terebinthinate odor and taste, soluble in alcohol, ether, fixed or volatile oils, and in its own weight of oil of turpentine. Chemically it is considered as the *Anhydride of Abietic Acid*, $C_{44}H_{64}O_5$, into which acid it is converted by agitation with warm diluted alcohol. *Silvic*, *Pinic* and *Palmaric Acids* are decomposition products, not constituents of the resin as formerly taught. Other official resins are RESINA COPAIBÆ, RESINA JALAPÆ, RESINA PODOPHYLLI and RESINA SCAMMONII, which are severally described under the titles of the plants forming their respective sources.

Preparations.

Ceratum Resinæ, Resin Cerate, Basilicon Ointment,—consists of Resin 35, Yellow Wax 15, and Lard 50 parts. It forms 65 per cent. of Turpentine Liniment, and is a constituent of Savine Cerate.

Emplastrum Resinæ, Resin Plaster, Adhesive Plaster,—consists of Resin 14, Lead Plaster 80, Yellow Wax 6 parts. Is the common adhesive plaster of surgery, and an ingredient of the official Arnica, Belladonna and Capsicum Plasters.

Resin itself is an ingredient of Mercurial Plaster, Cantharides Cerate, and Cerate of the Extract of Cantharides.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Resin gives consistence and adhesiveness to plasters and cerates, and generally acts as a mild local stimulant, but the writer has seen persons with so susceptible a skin that the ordinary adhesive plaster would produce on them a high degree of cutaneous irritation. It is never employed internally, but in chronic bronchial catarrh the fumes from boiling resin are inhaled with considerable advantage. Resin Cerate is one of the most commonly used applications to promote the healing of indolent ulcers, blistered surfaces, burns, scalds, chilblains, etc.

RESORCINUM, Resorcin, Meta-di-hydroxy-benzene, $C_6H_4(HO)_2$ (Unofficial),—is a diatomic phenol, isometric with *Pyrocatechin* and *Hydroquinone* (see *ante*, page 180), obtained by fusing certain resins with a caustic alkali, but best prepared by fusing Potassium Benzol-di-sulphonate with Caustic Potassa, the salt being decomposed into Potassium Sulphite and Resorcin. It crystallizes in colorless, rhombic prisms or plates of neutral reaction, odorless, and of sweetish, acrid taste, soluble in 1¼ of water, also in alcohol, ether, etc. Dose, gr. v–xv;—as an antipyretic ʒj, not repeated for several hours, or gr. v every 2 hours.

PHYSIOLOGICAL ACTION.

Resorcin is closely allied to Carbolic Acid, but possesses the advantage over the latter in that it is odorless, more soluble and almost non-irritant.

is equally powerful as an antiseptic and antiferment, arresting decom-
sition and destroying low organisms. Injected beneath the integu-
nt in solution it produces very little irritation, and never causes
lammation or abscess. Vesication results from its application to the
cous membrane. Internally a 30- to 60-grain dose causes a sense of
at, discomfort and oppression, followed by profuse perspiration and
guor; if fever be present the temperature of the body is lowered sev-
l degrees, but rises again after a rigor in from 2 to 4 hours. Larger
ses (150 grains) have produced deafness, dizziness, salivation, confused
sion, vertigo, unconsciousness, general clonic convulsions, and tetanic
idity of the muscles of the neck, with no decline of temperature in
verless subjects. Toxic doses (gr. xv to each ℥xxxv of weight) cause
animals trembling succeeded by epileptiform convulsions, which
crease in severity and then decline, the respiration is quickened and
feebled, the heart's action becomes rapid, weak, and irregular, and
ath results from paralysis of respiration, the drug paralyzing the motor
cts in the spinal cord, but not affecting the general sensibility. It is
minated chiefly by the urine, which it colors a bluish-violet hue, and
th great rapidity, about one hour serving for its excretion. The best
st for its presence is the solution of the Perchloride of Iron, which
oduces with it a dark-violet, almost black color.

Antagonists.

Atropine and other cardiac and respiratory stimulants, cerebral excitants and agents
ich raise the arterial tension are physiologically antagonistic.

THERAPEUTICS.

Resorcin is employed as an antipyretic and antiseptic, being preferred
Carbolic Acid for internal and subcutaneous use. A 3 per cent. solu-
on gives good results in stomach complaints, as gastralgia, gastric catarrh,
stric ulcer, fermentative indigestion, etc. It has given great satisfac-
on to some observers in intermittent fevers and malarial diseases gener-
ly, while others have been much disappointed with its action therein.
s an antipyretic it has been used in erysipelas, puerperal fever, septicæ-
ia and diphtheria, and in the latter disease it has been employed locally
crystals with decided benefit. A 2 per cent. solution has given great
tisfaction as a local antiseptic application to wounds, parasitic skin dis-
es, cystitis, gonorrhœa, anthrax, and syphilitic sores of unhealthy
aracter. As spray a similar solution is well applied to catarrhal or ulcer-
ve affections of the respiratory passages. As a caustic it may be applied
undiluted form to chancres, papillomata, carbuncles, etc. A saturated
ereal solution is a good application where the caustic action of the
g is required.

RHEUM, Rhubarb,—is the root of *Rheum officinale*, a perennial plant of the nat. ord. Polygonaceæ, a native of Thibet, and of other undetermined species of *Rheum*, many of which are cultivated in Europe and America, their leaf-stalks being used as a fruit. The commonly accepted medicinal Rhubarb is the Chinese variety, and is imported from Shanghai and Canton. It occurs in cylindrical or conical segments, sometimes flattened and bored with a hole, of a dirty-brown-yellow color externally, internally marbled with fine waving lines, of peculiar odor, gritty between the teeth, and of a bitter astringent taste. It imparts its virtues to water and alcohol, and contains several substances of greater or less activity, the least important being *Phæoretin*, $C_{32}H_{32}O_{14}$, the rhubarb-resin,—*Erythroretin*, $C_{38}H_{36}O_{14}$, and *Chrysophan*, $C_{27}H_{30}O_{14}$, the latter of which is split by acids into Sugar and Chrysophanic Acid. (See *ante*, CHRYSAROBINUM, page 174.) It also contains *Rheo-tannic Acid*, $C_{52}H_{52}O_{28}$, *Rheumic Acid*, $C_{40}H_{32}O_{18}$, and probably a principle which is identical with Cathartic Acid (see SENNA), on which its purgative activity may depend. Dose of Rhubarb as a stomachic, gr. j–v;—as a purgative, gr. x–xx.

Preparations.

Extractum Rhei,—Dose, gr. x–xv.

Extractum Rhei Fluidum,—Dose, ʒss–ij.

Pilulæ Rhei,—composed of Rhubarb 3, Soap 1; each pill containing gr. iij of powdered Rhubarb. Dose, j–iij.

Pilulæ Rhei Compositæ,—each contains of Rhubarb gr. ij, Aloes gr. 1½, Myrrh gr. j, Oil of Peppermint gr. $\frac{1}{10}$. Dose, ij–iv. A safe and efficient laxative.

Tinctura Rhei,—has of Rhubarb 12, Cardamom 2, with diluted Alcohol to 100 parts. Done, ʒj–℥ss.

Tinctura Rhei Aromatica,—has of Rhubarb 20, Cinnamon 4, Cloves 4, Nutmeg 2, Diluted Alcohol to 100 parts. Dose, ʒj–ʒiij.

Tinctura Rhei Dulcis,—has of Rhubarb 8, Licorice 4, Anise 4, Cardamom 1, Diluted Alcohol to 100 parts. Dose, ℥ss–℥ij.

Syrupus Rhei,—has of Rhubarb 90, Cinnamon 18, Potassium Carbonate 6, Sugar 600, Water to 1000 parts. Or, it may be made extemporaneously thus:—Fluid Extract ℥iij, Simple Syrup ℥xxix. Dose for an infant ʒj; for older children ʒij–℥ss.

Syrupus Rhei Aromaticus,—has of the Aromatic Tincture 10, Syrup 90 parts. Dose, as the Syrup.

Vinum Rhei,—has of Rhubarb 10, Calamus 1, Stronger White Wine to 100 parts. Dose, ʒj–℥ss.

Pulvis Rhei Compositus,—has of Rhubarb 25, Magnesia 65, Ginger 10. Dose, a teaspoonful.

Mistura Rhei et Sodæ,—Sodium Bicarbonate 30, Fluid Extract of Rhubarb 30, Spirit of Peppermint 30, Water to 1000 parts. Dose. ʒij–℥ij.

PHYSIOLOGICAL ACTION.

Rhubarb is classed among the tonic-astringent and resin-bearing purgatives, which increase the secretions of the glandular appendages of the intestinal canal, and stimulate the muscular layer of the bowel. In small doses (gr. j–v) its action is that of a stomachic and intestinal astringent, the influence of the bitter principle and the rheo-tannic acid probably predominating. In larger doses (gr. xxx–lx), its cathartic action prevails.

ducing in 6 to 8 hours copious yellow, pultaceous stools, with some ping and considerable hepatic stimulation. After the cathartic prin- le is expelled, the astringent quality of its tannin asserts itself and stipation is likely to result. The yellow color of the stools is partly to the rhubarb pigment and partly to excess of bile, the drug having rked cholagogue properties, in all probability due to its resin, Phæore- . Its pigment stains the milk, urine and sweat, the milk acquiring a ter taste and purgative properties. The cathartic action of Rhubarb y be obtained from its application locally to ulcers, by being rubbed o the moist skin, or applied to the abdomen as a poultice.

THERAPEUTICS.

Rhubarb is highly esteemed as a cathartic for children, from the mild- s of its action, as, though occasionally producing quite severe griping, ever inflames the gastro-enteric mucous membrane. Its tonic and ringent action following its catharsis makes it a valuable agent in rrhœas due to the presence of irritating matter in the bowel, and to rect atonic indigestion accompanied by diarrhœa. For hemorrhoids h constipation its gentle action makes it peculiarly suitable, its astrin- t after-effect being entirely overcome by 2 to 4 drachm doses of olive nightly. It may be combined with a mercurial or with Bicarbonate Sodium, the latter being supposed to overcome its astringent action d to disguise its taste in some degree. In small doses the tincture is ery efficient stomachic tonic, improving appetite, increasing the flow the gastric juice, assisting digestion, and promoting the action of the er without producing any cathartic results. The preparations most in for children are the Aromatic Syrup and the Mistura Rhei et Sodæ.

RHINACANTHUS (Unofficial),—the leaves and root of *Rhina- thus communis*, a shrub of the nat. ord. Acanthaceæ, indigenous to lia and China. The root contains a quinone-like body named *Rhina- thin*, $C_{14}H_{18}O_4$, which forms with alkalies intensely red compounds ich are decomposed by benzin. It is known in China as *Hong-Pang- ong*, and is employed as a local remedy for ringworm and parasitic n diseases, the leaves being bruised and mixed with lime-juice. Used ernally a tincture of the root has some reputation as a feeble tonic and tiperiodic. The same preparation is applied locally in chronic eczema, ea and psoriasis.

RHUS AROMATICA, Sweet Sumach (Unofficial),—is an in- enous shrub of the nat. ord. Terebinthaceæ, growing about 5 feet h, and having yellow flowers in spikes. The root-bark contains a volatile oil, several resins, fat, tannin, etc. A fluid extract is prepared from the bark of the root according to the general pharmacopœial rule, and may be given in doses of ♏x–xxx, every 2 or 3 hours.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Rhus Aromatica has astringent properties, and seems to possess a selective action upon the urinary tract. Its action is not yet clearly made out. Therapeutically it has been used with advantage in cystitis, night-sweats, hematuria, menorrhagia, diabetes insipidus, diarrhœa and dysentery. As a remedy for incontinence of urine in children it has attracted considerable attention, having been extremely efficient in doses of ♏xv of a good fluid extract four times daily, administered in glycerin and water, or any other suitable excipient. It is reported to be equally effective in hysterical enuresis of adults, but larger doses (♏xx–xxx several times a day) are required. Diabetes insipidus is remarkably benefited by its continued use, and even in diabetes mellitus its employment has occasionally seemed to have been followed by curative results.

RHUS GLABRA, Smooth Sumach,—is the fruit of *Rhus glabra*, an indigenous shrub of the nat. ord. Terebinthaceæ, growing in rocky and barren soil to a height of 8 to 12 feet. The berries are about ⅛ inch in diameter, subglobular, densely hairy, of crimson color and acidulous taste, but inodorous. The leaves and bark have an astringent and bitter taste, and are also used medicinally. It contains tannin, coloring matter, potassium and calcium malates.

Preparation.

Extractum Rhoïs Glabræ Fluidum,—Dose, ʒj–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Sumach-berries form a useful acidulous and astringent drink or gargle in catarrhal pharyngitis, stomatitis, aphthæ, etc. An infusion (ʒj to the pint) may be used, or the official fluid extract as a wash and dressing for ulcers and wounds. Internally they are useful remedies for mild catarrhal affections of the stomach and bowels.

RHUS TOXICODENDRON, Poison Sumach,—is the fresh leaf of *Rhus Toxicodendron*, the Poison Oak, and of *Rhus radicans*, the Poison Ivy, shrubs of the nat. ord. Terebinthaceæ, indigenous to Canada and the greater part of the United States east of the Rocky Mountains. The climbing plant (R. radicans) is not a distinct species, but a variety of the erect form, both when wounded exuding a poisonous, acrid, milky juice which turns dark on exposure. The leaves are trifoliate, on petioles 4 or 5 inches long, the lateral leaflets sessile, entire and glabrous in R. radicans (or variously notched, toothed or lobed, downy beneath, in R. Tox.), inodorous, astringent and acrid. They may be confounded with the leaves of the hop-tree, *Ptelea trifoliata*, which are quite similar in appearance, but all its leaflets are sessile. The poisonous principle of the plant is *Toxicodendric Acid*, which is volatile, and also exists in *Rhus venenata* or Swamp sumach, *Rhus pumila*, and *Rhus diversiloba*, the former of which is probably the most poisonous of the four species. Dose of the leaves is generally placed at gr. j–iv, but if old and dry they will generally prove to be inert. There are no official preparations.

Preparations.

Tinctura Rhoïs Toxicodendri (Unofficial),—may be prepared according to the formula of the Pharmacopœia for Tincturæ Herbarum Recentium (Tinctures of Fresh Herbs), one part of the fresh leaves to two of Alcohol. Dose, ♏$\frac{1}{10}$–♏ij.

Extractum Rhoïs Toxicodendri,—has been used in France in large doses. It is probably inert.

PHYSIOLOGICAL ACTION.

The effects of Rhus Toxicodendron upon the skin are familiar to all who have suffered from contact with poison-oak or ivy. Some persons are so susceptible to the poison that the exhalations from the plant will produce on them its characteristic action. Others are apparently insusceptible to its influence, and can with impunity rub the juice into their skin, or even chew its leaves.

The action of the plant when locally applied is that of a cutaneous irritant, causing redness and swelling of the affected parts, with a vesicular eruption and intolerable itching, which may spread rapidly over the surface of the body and extend to the mucous membranes, producing conjunctivitis, redness and tumefaction of the mouth and throat, thirst, cough, nausea and vomiting, vertigo, stupefaction, etc. Colicky pains are experienced in the abdomen, are worse at night and are aggravated by food or drink. Diarrhœa may occur, with tenesmus and bloody stools, also diuresis, bloody urine, or even complete retention. Fever with delirium is frequently present, and may be typhoid in character, or intermittent with profuse perspiration. Pains of rheumatoid type are experienced throughout the body, but particularly in the joints and lumbar region, apparently intensified by rest and heat. The fibrous structures are evidently the seat of its selective action, and a sensation of numbness in the lower extremities is frequently experienced. Similar phenomena attend its internal administration, but fatal results have not followed in any case of poisoning recorded. The effects of the poison usually last from ten to fifteen days, and are then followed by desquamation of the epidermis.

Antidotes.

Grindelia Robusta is the best local application in cases of Rhus poisoning, but a solution of Mercuric Chloride is also a very serviceable lotion, and Lime-water with Linseed-oil, solution of Plumbum Acetate, solution of Chlorinated Soda, and Alum-curd are all very useful. Rest, low diet and laxatives are appropriate, and Opium or strong black coffee to relieve the irritability of the nervous system.

THERAPEUTICS.

Rhus Toxicodendron was used medicinally by Dufresnoy in France and by Alderson in England about the close of the eighteenth century. The attention of the former was attracted to it by the accidental poisoning of a student who was afflicted with chronic eczema, which disappeared on the subsidence of the Rhus symptoms. It is a favorite remedy with the so-called homœopathists, who ascribe to it extraordinary virtues in acute cutaneous affections of vesicular type, subacute and chronic rheumatism, vesicular erysipelas and typhoid fever. Among regular authorities it meets with very little favor as a remedial agent, but Dr. Phillips recommends it strongly in rheumatic affections of the fibrous tissues, erythema and erysipelas, eczema, herpes zoster and pemphigus. Dr. Piffard corroborates these opinions of its therapeutical value, and states that when rheumatic pain is "worse at night" prompt relief may be expected from Rhus. It was used by Dufresnoy in paralyses with a certain degree of success, and Eberle reports a case of paralysis in which it proved curative. It is admitted by many observers to be a useful remedy in paralytic affections of the lower extremities depending on a rheumatic diathesis, or resulting from exposure to cold and wet. As an external application it is efficacious in sprains and other affections of ligaments and tendons, also to extensive but superficial burns, stings of insects and chilblains. For these affections a lotion of about ʒss of the strong tincture to a pint of water is usually employed.

RICINI OLEUM, Castor Oil,—is a fixed oil expressed from the seeds of *Ricinus communis*, a tree of the nat. ord. Euphorbiaceæ, indigenous to India, but extensively cultivated in the United States, where it is an annual plant about 5 or 6 feet high, bearing ovate seeds, smooth and shiny, of gray color marbled with brownish spots and stripes, three contained in a pod. The oil is an almost colorless, transparent, viscid liquid, of faint odor, bland or slightly acrid taste, neutral reaction, sp. gr. 0.950 to 0.970, soluble in an equal weight of alcohol, and congealing at about 0.4° F. It consists mainly of *Ricinoleic Acid*, $C_{18}H_{34}O_3$, combined with glycerin, but palmitin, stearin, cholesterin, and probably a resin and an alkaloid also occur in small quantities. Dose, ʒj–℥j. It is contained in Collodium Flexile (3 per cent.) and in Linimentum Sinapis Co. (15 per cent.).

PHYSIOLOGICAL ACTION.

Used externally pure Castor Oil is perfectly bland. Internally administered it is non-irritant until it reaches the duodenum, where it is decom-

y the pancreatic juice, setting free the Ricinoleic Acid, which pro-
irgation by a mildly irritant action on the bowel, stimulating the
l glands and muscular coat, but not the liver. It is a simple pur-
icting in four to six hours, producing one or more liquid stools
pain or tenesmus, and followed by a sedative effect on the intes-
The leaves are believed to possess galactagogue properties when
pplied as a poultice to the breasts. Ricinoleic Acid enters the
d the tissues, and is excreted with the various secretions of the
nparting its purgative qualities to the milk of the nursing mother.

THERAPEUTICS.

r Oil is the best of simple purgatives, and is used where a free
on of the bowels is alone indicated, or when only a laxative action
d, as in the constipation of typhoid fever, in pregnancy and post-
conditions, diarrhœa from the presence of irritating matter in the
and after operations on the abdominal or pelvic organs. It is
ed as a purgative for children, also for the aged and infirm. In-
r a larger relative dose than adults, probably from their ability to
larger quantity of what is taken. It is employed with great benefit
tive in irritation or inflammation of the bowels, in hemorrhoids,
atory or spasmodic affections of the genito-urinary organs, ne-
r cystitis, gonorrhœa, calculi, and stricture of the urethra and
In cases of dysentery 10 to 20 drops of Laudanum may be added
dose to counteract the pain, tenesmus and exhaustion resulting
frequency of the passages. If much depression exists, as shown
ed arterial tension and a dry, glazed tongue, 5 drops of Turpen-
ld also be added.

r Oil is much used in the puerperal state and greatly abused.
considerable evidence in support of the charge that it induces
oids by congesting the rectal vessels. Its purgative action is
n proportion to the purity of the sample employed. Externally,
oil is employed as a local sedative and protective, as in neutraliz-
effects of lime upon the conjunctiva.

eaves of the castor-oil plant are used to promote the secretion of
They may be applied to the breast in poultice, and a decoction or
ract given internally at the same time.

Administration.

useous smell is best concealed by the Essential Oil of Bitter Almonds. Emul-
not a success. Capsules containing the requisite dose are easily obtained. In
e of these the best way to administer a dose of oil is to smear the sides of a
eglass with very thick cream, then to pour in the oil, covering it with a little
m. A teaspoonful of cream being then taken into the patient's mouth, he is
o bolt the dose at one gulp. Some prefer it floated on orange-juice, strong
el or wine. One of the best vehicles for it is foaming beer. Glycerin increases
ve power, when given conjointly.

ROSA CENTIFOLIA, Pale Rose,—the petals of *Rosa centifolia*, the Cabbage Rose, a well-known cultivated shrub of the nat. ord. Rosaceæ. They are of pink color, fragrant odor, sweetish taste changing to slightly bitter and faintly astringent. The odor is due to a minute quantity of a *Volatile Oil* (Oil of Rose), besides which, the petals contain tannin, fat, resin, sugar, etc. If it is desired to keep Pale Rose fresh for any length of time, it should be mixed with half its weight of Sodium Chloride, pressed into a jar and kept, well closed, in a cool place.

Preparations.

Aqua Rosæ, Rose-water,—Pale Rose 40, Water 200 parts, mixed and distilled by steam to 100 parts. Dose, indefinite.

Unguentum Aquæ Rosæ, Cold Cream,—has of Expressed Oil of Almond 50 parts, Spermaceti 10, White Wax 10, Rose-water 30. If Glycerin and Benzoic Acid were added, it would keep better and be much more efficient as an emollient and protective.

Pale Rose is also an ingredient of the Compound Syrup of Sarsaparilla.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Pale Rose is only used for odoriferous and flavoring purposes. Rose-water has no strictly medicinal properties, but is an agreeable excipient for lotions, urethral injections and collyria. The ointment, commonly termed "cold cream," is an agreeable emollient and protective in chapped hands and other superficial skin affections.

ROSA DAMASCENA,—is not official, but is the source of the official Oil of Rose. It is largely cultivated in Roumelia on the southern slope of the Balkan Mountains, from whence almost all of the product is supplied to commerce.

Oleum Rosæ, Oil of Rose, Attar of Rose,—is a volatile oil distilled from the fresh flowers of *Rosa damascena*. It is a pale-yellowish, transparent liquid, having a strong odor of rose, a sweetish taste and a slightly acid reaction, but slightly soluble in alcohol, of sp. gr. about 0.860. Slowly cooled to 50° F., it congeals to a transparent solid, interspersed with slender, iridescent, scale like crystals. Rapidly cooled to 54° F., it congeals to a solid mass of feathery scales or plates. It consists of an aromatic oxygenated elæopten and an odorless solid stearopten (rose-camphor). Being very expensive it is much adulterated with other volatile oils. It is used chiefly for perfuming cosmetic preparations, ointments and lotions.

ROSA GALLICA, Red Rose,—the petals of *Rosa gallica* (nat. ord. Rosaceæ), collected before expanding. They occur in small cones of roseate odor, and a bitter, slightly acid and distinctly astringent taste, and contain an aromatic oil, tannic and gallic acids, quercitrin, coloring matter, salts, etc.

Preparations.

Extractum Rosæ Fluidum,—Dose, ♏v–ʒij.

Confectio Rosæ,—has of Red Rose 8 parts, Sugar 64, Honey 12, Rose-water 16
basis for pills.

Mel Rosæ. Honey of Rose,—has of Red Rose 8, Honey 92, Diluted Alcohol to 100 rts. For local use.

Syrupus Rosæ,—has of the Fluid Extract of Rose 10 in Syrup 90. Dose, ʒj–ij, for voring.

Red Rose is also an ingredient of Pilulæ Aloes et Masticheś.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Rosa Gallica is classed among the astringents as it contains an appre- able amount of Tannic and Gallic Acids. A compound infusion, con- ining sugar and dilute Sulphuric Acid, was formerly official, and is used s an agreeable gargle for the throat and mouth in inflamed and ulcerated onditions. The chief uses of the rose preparations, however, are as ehicles for other agents, or to impart flavor and odor to extemporaneous rescriptions.

ROSMARINUS, Rosemary,—the leaves of *Rosmarinus officinalis*, shrub of the nat. ord. Labiatæ, cultivated in gardens for the sake of its irge pale-blue flowers. The leaves are pungently aromatic and some- hat camphoraceous, containing, besides the official volatile oil, a little annin, resin and a bitter principle. They constitute one per cent. of he ingredients of Vinum Aromaticum (see *ante*, page 86).

Oleum Rosmarini,—is the volatile oil distilled from Rosemary, a colorless or yellowish quid, of sp. gr. about 0.900, having the characteristic odor of the plant, a camphoraceous aste, and is readily soluble in alcohol. It consists of a terpene, isomeric with Turpen- ne, $C_{10}H_{16}$, and a body allied to Camphor. It is an ingredient of Linimentum Sapo- is, Spiritus Odoratus and Tinctura Lavandulæ Composita. Dose, ♏j–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Rosemary was formerly considered emmenagogue, galactagogue and iuretic, but is now never employed in substance. It oil is somewhat imulant and carminative, and in excessive quantity has caused death. is chiefly employed as an external stimulant in liniments and lotions, pecially to the scalp in alopecia, where it is supposed to increase the ood-supply to the hair-bulbs, and is usually combined with cantharides. haled it reduces the body temperature and gives the urine a violaceous lor.

RUBUS, Blackberry-bark,—is the bark of the root of *Rubus vil- sus*, the common Blackberry, *Rubus canadensis*, the Dewberry, and *ubus trivialis*, the Bush Blackberry of the Southern States, all of the t. ord. Rosaceæ. It occurs in thin, tough, flexible bands, blackish- ay externally, pale-brown internally, inodorous, strongly astringent and somewhat bitter taste. It contains over 10 per cent. of Tannin. ose, gr. xv–xxx.

Preparations.

Extractum Rubi Fluidum,—Dose, ♏x–ʒj.
Syrupus Rubi has of the Fluid Extract 20 parts, Syrup 80. Dose, ʒj–℥j.
Syrupus Rubi Aromaticus (Unofficial),—contains the root-bark, cinnamon, cloves and mace. Each fl ℥ has gr. xxx of the drug.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Blackberry-bark derives its virtues from its tannin. It is strongly astringent, and may be used in decoction, wine or the above-named official preparations. It is highly esteemed in summer and infantile diarrhœas.

RUBUS IDÆUS, Raspberry,—is the fruit of *Rubus idæus*, the Raspberry bush, *Rubus occidentalis*, the Thimbleberry, or *Rubus strigosus*, the wild Red Raspberry, all of the nat. ord. Rosaceæ. It contains sugar, malic and citric acids, proteids, pectin, etc., also a *Volatile Oil* consisting of compound ethers, to which the odor is due. Its sole use in medicine is to prepare a pleasantly flavored syrup.

Preparation.

Syrupus Rubi Idæi, Raspberry Syrup,—has of Raspberries and Sugar any convenient quantity, boiled (but not in tinned vessels) and strained. Dose, ad libitum. It has a bright-red color, a fruity, agreeable odor, a pleasant, acidulous taste and an acid reaction. It has no special medicinal virtues, but forms an agreeable flavoring for mixtures, and mixed with water a pleasant drink in febrile conditions.

The leaves of the wild Red Raspberry (*Rubus strigosus*) are considerably astringent, and in infusion, ℥j to the pint, are a popular domestic remedy for diarrhœas.

RUMEX, Yellow Dock,—is the root of *Rumex crispus*, and of other species of Rumex, plants of the nat. ord. Polygonaceæ, growing as common weeds along roadsides. Several species of Rumex have sour leaves, and are popularly called *Sorrel* to distinguish them from the others which are called *Dock*. The official root is 8 to 12 inches long, ½ inch thick, somewhat fusiform and fleshy, annulate above, deeply wrinkled below, externally rusty-brown, internally whitish, with fine medullary rays; fracture short, odor slight, taste bitter and astringent. It contains tannin, mucilage, starch, calcium oxalate, and two principles named *Rumicin* and *Lapathin*, which are shown to be identical with *Chrysophanic Acid*. (See *ante*, page 336). Its constituents are nearly identical with those of Rhubarb. Dose, gr. xv–ʒj.

Preparations.

Extractum Rumicis Fluidum,—Dose, ♏xv–ʒj.
Decoctum Rumicis (Unofficial),—℥ij of the fresh root, or ℥j of the dry root to Oj of water. Dose, ℥j–ij.

Physiological Action and Therapeutics.

k is astringent, tonic and laxative. It has also been considered : and anti-scorbutic. It has been employed chiefly in chronic s disorders, glandular swellings, and other symptoms of the strumthesis. It seems to possess a selective action on the mucous ie of the larynx, and in many cases of laryngeal irritation with symptoms, dry, violent cough, and a sense of soreness behind um, it will give prompt relief. The Rumex Acetosa has a populition as a local application for cancer.

A, Rue,—is the source of the official Oil of Rue, which is dism the leaves of *Ruta graveolens*, an herbaceous perennial of the Rutaceæ, growing wild throughout Southern Europe, and fre:ultivated in gardens for its yellowish flowers. The fresh leaves ıld be used, and as drying impairs their qualities the oil is genıployed.

Rutæ, Oil of Rue,—the volatile oil distilled from *Ruta graveolens*; a colorless, -yellow liquid, of disagreeable but aromatic odor, pungent acrid taste and neun, sp. gr. about 0.880, soluble in an equal weight of alcohol. Dose, ♏j–v, in

Physiological Action.

an active irritant, locally a rubefacient, the oil producing heat, tion and vesication. In the ordinary dose it causes a sensation n the stomach and skin, increases the action of the heart, and s the bronchial, cutaneous and renal secretions, the odor of the distinctly perceptible in the breath, sweat and urine. After es of the oil violent gastro-enteritis results, with extreme pros:onvulsions, strangury and suppression of the urine. Abortion roduced by large doses, but with great danger to life. Rue is an emmenagogue, and in men aphrodisiac; it is also considered odic and carminative.

Therapeutics.

il of Rue is employed internally in amenorrhœa, hysteria, conınd flatulence. As an emmenagogue it is very efficient when the ı is one of functional inactivity of the uterus and ovaries. It has l used in menorrhagia from debility and after abortion. A n of the fresh leaves is often employed by injection against , and internally to remove lumbricoid worms. Externally the paration has been applied to the chest in chronic bronchitis, also us scaly eruptions and glandular enlargements. Used as an ient it has frequently caused death, preceded by symptoms of and irritant poisoning.

SABINA, Savine,—the tops of *Juniperus Sabina*, a small, evergreen shrub of the nat. ord. Coniferæ, growing in Northern Europe, Asia and America. It closely resembles Red Cedar (*Juniperus virginiana*), but is distinguished from the latter by its smaller size and by its larger fruit. It occurs in short, thin branchlets, having oveo-lanceolate leaves in four rows; of peculiar, terebinthinate odor, and nauseous, bitter, resinous taste. It contains a Volatile Oil (which is official), also tannin, resin, extractive matters, chlorophyll, etc. Dose, gr. v–x.

Preparations.

Extractum Sabinæ Fluidum,—Dose, ♏v–xv.

Ceratum Sabinæ,—has of the Fluid Extract 25, Resin Cerate 90 parts, melted and cooled.

Oleum Sabinæ,—a volatile oil distilled from Savine existing in the fresh tops in the proportion of 2½ per cent., and in the berries 10 per cent. It is a colorless, or yellowish liquid, isomeric with oil of turpentine, $C_{10}H_{16}$, having a peculiar, terebinthinate odor, a pungent camphoraceous taste, and neutral reaction, of sp. gr. about 0.910 and soluble in an equal weight of alcohol. Dose, ♏j–v.

PHYSIOLOGICAL ACTION.

Externally the action of Savine resembles that of Turpentine, except that it is more irritant, the oil producing vesication if applied sufficiently long. Internally a full medicinal dose causes heat sensations, nauseous eructations, flatulence, increased cardiac action, stimulation of the cutaneous, bronchial and renal secretions, irritation of the kidneys, hyperæmia of the ovaries and uterus and increased menstrual activity. In large doses it produces hematuria, dysuria, and intense gastro-enteritis, with violent vomiting and purging. It may originate uterine contractions in the pregnant female, but its abortifacient effect can only be produced by a quantity sufficient to endanger life. The oil diffuses into the blood and is excreted by the various excretory channels.

THERAPEUTICS.

As an emmenagogue Savine is highly esteemed by many authorities, Dr. Phillips considering it "one of the most certain and powerful" agents of this class, "with the additional advantage that it can be given with perfect freedom from risk of doing harm." So irritant an agent, however, requires the exercise of great caution in its use. It has been found extremely efficient in dysmenorrhœa when not due to mechanical causes; also, in menorrhagia and hemorrhage after abortion. In chronic gout and the joint affections of chronic rheumatism, it was formerly much employed. Externally the cerate is used to prolong the discharge from blisters, setons or issues, and to stimulate the healing of indolent ulcers. For these purposes it is considered safer than Cantharides, as its prolonged employment does not bring on strangury or vesical irritation. As a caustic it is efficient for the destruction of warts and other excrescences, and the moistened powder is used as a paste on venereal condylomata, in combination with burnt alum or cupric subacetate. The oil is the most efficient preparation for internal administration.

SACCHARINA, Saccharine,—is a recently discovered derivative of a coal-tar product, *Toluene*, from which it is prepared by a complicated process. It has the chemical title *Benzoyl-sulphonic-imide*, and the formula $C_6H_4(CO)(SO_2)NH$. It occurs as a white amorphous powder, with a very sweet taste, and a faint flavor of bitter almonds, soluble in alcohol and in ether [Sugar is *not* soluble in ether], sparingly in cold water, more so in hot water.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Saccharine is 220 times sweeter than sugar to the taste, and is also an efficient antiseptic. It is not a food, like sugar; and has no injurious action on man. It may prove of use as a substitute for sugar in cases of diabetes, but it has no curative action upon that disease.

SACCHARUM, Sugar, Cane-Sugar, $C_{12}H_{22}O_{11}$,—is the refined sugar of *Saccharum officinarum*, or Sugar-cane, a perennial plant of the nat. ord. Graminaceæ, indigenous to India and adjoining countries, but cultivated in tropical regions throughout the world. This sugar is also present in several grasses (as *Zea Mays*, maize, *Sorghum saccharatum*, etc.), in the juice of various trees (maple, birch, palm, etc.), and in many roots, particularly *Beta vulgaris*, the sugar-beet, which contains 12 per cent.

Cane-sugar occurs in white, dry, hard, crystalline granules, permanent in the air, odorless, of purely sweet taste and neutral reaction, soluble in 0.5 of water and in 175 of alcohol at 59° F., in 0.2 of boiling water and in 28 of boiling alcohol, insoluble in ether. The aqueous solution, saturated at 59° F., has the sp. gr. 1.345, and is miscible with alcohol in all proportions. Its freedom from Grape-sugar (glucose) and from more than a slight quantity of Inverted Sugar (glucose *plus* levulose) is ascertained by dissolving 1 gram in 10 c.c. of boiling water, then mixing with the solution 4 or 5 drops of test-solution of Silver Nitrate and about 2 c.c. of Aqua Ammoniæ, and quickly heating to boiling, when not more than a slight coloration, but no black precipitate should appear after standing at rest for 5 minutes.

Other Sugars.

Saccharum Lactis, Sugar of Milk, Lactose, $C_{12}H_{22}O_{11}.H_2O$,—described on next page.

Glucose, Dextrose, Grape-sugar, Starch-sugar, $C_6H_{12}O_6$, or hydrated $C_6H_{12}O_6.H_2O$ (Unofficial), also known as liver-sugar, diabetic sugar,—forms yellowish nodules or crystals, very soluble in water and in alcohol, has a sweet taste, less marked than that of cane-sugar, may be obtained artificially from cane-sugar or from starch, by boiling with a dilute mineral acid, or by the action of Diastase, a vegetable ferment formed during the germination of grain. Boiling solutions of the alkalies convert it into a brown substance (melassic acid).

Levulose, Fruit-sugar, $C_6H_{12}O_6$ (Unofficial),—frequently found with grape-sugar in fruits, also in honey.

Inosit, Phaseo-mannit, $C_6H_{12}O_6.2H_2O$ (Unofficial),—exists in the juice of some meats, in asparagus, etc. Is very sweet, but does not undergo alcoholic fermentation.

Allied Substances.

Theriaca, Treacle, Sugar-house Molasses (Unofficial),—is the uncrystallizable residue of the process for refining sugar,—a thick, brown, fermentable syrup, very sweet, and of sp. gr. about 1.40. It is official in the B. P., and is used in making up some of the official pills of that pharmacopœia.

Amylum, Starch, $C_6H_{10}O_5$,—when boiled with dilute mineral acids or when subjected to the action of diastase, ptyalin or pancreatin, starch is converted into glucose. (See *ante*, article AMYLUM, page 100.)

Cellulose, $C_6H_{10}O_5$ (Unofficial),—forms the basis of all vegetable fibre, and is isomeric with starch. It exists almost pure in cotton and in Swedish filter paper. Pyroxylin (see *ante*, page 229), or gun-cotton, is dinitro-cellulose.

Glycogen (Unofficial),—closely resembles starch in its properties, being converted into glucose by the same agents which so act on starch. It exists in the liver of all animals.

Dextrin (Unofficial),—is produced by the action of dilute acids on starch, and is an intermediate product in the conversion of starch into glucose. It is a transparent, brittle solid, looking like gum, soluble in water and dilute alcohol, is not fermentable, nor is it colored by Iodine.

Preparations.

Sugar is an ingredient of Pil. Ferri Carbonatis, Pil. Ferri Iodidi, Ferri Carbonas Saccharatus, Mistura Ferri Composita, Pulvis Cretæ Compositus, Pulvis Glycyrrhizæ Compositus, and the Troches, Syrups, Compound Syrups, etc.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Sugar is employed in pharmacy and therapeutics chiefly as a vehicle, a corrigent, a preservative and an antiseptic. Syrups protect the active ingredients against putrefaction, but not always against fermentation. They also protect certain ferruginous preparations against oxidation. As an ingredient in troches, powders and extemporaneous mixtures sugar is used to cover the taste or to make insoluble substances more easily miscible with water. It increases the solubility of Lime in water. As a food it possesses well-known properties, being a nutrient to adipose tissue and a respiratory fuel.

SACCHARUM LACTIS, Sugar of Milk, Lactose,—$C_{12}H_{22}O_{11}.H_2O$,—is one of the constituents of the milk of mammals, and is officially described as a peculiar, crystalline sugar obtained from the whey of cow's milk by evaporation and purified by re-crystallization. Occurs in white, hard, crystalline masses, yielding a gritty, white powder, odorless, permanent in the air, of faintly sweet taste and neutral reaction, soluble in 7 of water at 59° F. and in 1 of boiling water, insoluble in alcohol, ether or chloroform. On adding to a solution of sugar of milk in an equal weight of boiling water some solution of soda, the liquid turns brownish, and on further addition of test-solution of Cupric Sulphate a brick-red precipitate separates.

Sugar of Milk is the least soluble of all sugars in water and is insoluble in alcohol. It enters into alcoholic fermentation with difficulty. In the presence of decomposing albuminous matter and under certain other influences, it undergoes the *lactic fermentation*, which results in the formation of Lactic Acid, Carbon Dioxide and Alcohol. It readily reacts with the reduction tests.

PREPARATIONS AND USES.

Milk is used in the Triturations, also in the Abstracts, Dover's
enarcotized Opium, etc., as a diluent. Being much harder
ugar it is considered a valuable excipient for powders requiring
ion and the minute subdivision of their medicinal constituent.
eet than cane-sugar, and being less apt to ferment in the stom-
wels is better than the latter for use with infants' food.

, **Willow**,—is the bark of *Salix alba*, the common White
d of other species of *Salix*, trees of the nat. ord. Salicaceæ.
fragments or quills, inodorous, bitter or astringent, and con-
e proportion of tannin, besides resin, gum, wax, lignin, etc.,
racteristic constituent *Salicin*, which is official. Dose of the
-ʒj, or more, in infusion.

igra, the *Pussy Willow*, grows along streams in the Southern
fluid extract is on the market, and may be used in doses of ʒss
, as a sexual sedative.

$C_{13}H_{18}O_7$, is a crystalline glucoside, consisting of *Saligenin* and
und in Gaultheria procumbens (Wintergreen), and in the bark
ecies of Salix (willow). SALICYLIC ACID, $HC_7H_5O_3$, is a deriva-
cin, probably by double oxidation ; but may also be considered
tion-derivative of Benzene, formed by replacing 2 atoms of its
the one by hydroxyl, and the other by carboxyl. (See page

It is obtained, therefore, either synthetically by combining
ts of Carbolic Acid with those of Carbonic Acid, and subse-
ication,—or from natural salicylates as the oils of wintergreen
birch,—or from salicin, by heating with caustic potash and
mass with hydrochloric acid. The acid prepared from natu-
is purer and more efficient than that prepared artificially, and
e tolerated by a patient who cannot bear the latter.

Preparations.

Salicin, $C_{13}H_{18}O_7$,—a neutral principle prepared from the bark of *Salix*
other species of Salix. White, shiny, silky crystals, odorless, of very bitter
tral reaction;—soluble in 28 of water and in 30 of alcohol at 59° F., in 0.7
ter and in 2 of boiling alcohol; insoluble in ether or chloroform. Dose,

licylicum, Salicylic Acid, $HC_7H_5O_3$,—occurs in fine, white, needle-shaped
eetish-acrid taste and acid reaction, soluble in 450 of water and in 2½ of
F.; 100 parts may be dissolved in 100 of water by the aid of 8 parts of
, gr. v–ʒj.

ylas, Salicylate of Sodium, $2NaC_7H_5O_3.H_2O$,—is soluble in 1½ parts of
, gr. v–ʒj.

cylas, Salicylate of Lithium, $2LiC_7H_5O_3.H_2O$,—is very soluble in water or
e, gr. v–ʒj.

inæ Salicylas,—is described under PHYSOSTIGMA, *ante*, page 308. Dose,

ultheriæ, Oil of Wintergreen. Dose, ♏v–xv. (See *ante*, page 223.)

Salol, Salicylate of Phenol,—consists of 60 parts by weight of Salicylic Acid and 40 of Carbolic Acid. Is insoluble in water, almost tasteless and odorless. Dose, gr. v-ʒj, in compressed tablet.

PHYSIOLOGICAL ACTIONS.

WILLOW-BARK is highly astringent and antiperiodic and feebly tonic, but is never employed medicinally, owing to its bulk. SALICIN is a bitter tonic, an antiferment, antiseptic, and is highly destructive to low organisms. It has slight antiperiodic power and is feebly antipyretic. It prevents the reaction between Amygdalin and Emulsin (see page 67), and also that of Ptyalin, etc., on Starch (see page 100). It seems to be devoid of toxic power on man, and is mainly excreted as Salicylic, Salicyluric and Salicylous acids, being first changed in the bowel into Saligenin and Glucose. Salicin is well borne by the stomach.

SALICYLIC ACID has properties similar to the above, but is much more energetic in its action, being a powerful antipyretic and antiseptic. It is also anhydrotic, checking local perspiration when locally applied. Inhaled it causes irritation of the respiratory passages, producing sneezing and cough. In small doses it stimulates the stomach, heart and respiration, but moderate quantities derange the stomach, causing nausea and vomiting, while large doses depress the heart's action and the respiration after a primary excitation of both, lower the arterial tension, relax the vessels, produce free perspiration, and reduce the temperature in fever. It causes vertigo, dilated pupils, tinnitus aurium, a sensation of tension in the frontal cerebrum, delirium, and may produce bed-sores from depression of the circulation, but does not affect the peripheral nerves as to either motion or sensation. In the blood it is first changed to Salicylate of Sodium, but a portion is again set free and uniting with glycocoll forms Salicyluric Acid ($HC_9H_8NO_4$), coloring the urine green. It is slowly excreted through the secretions generally, especially in the urine, sweat, saliva and bile. It stimulates the kidneys, at the same time disinfecting them and increasing the acidity of the urine, but may so irritate the kidneys as to produce albuminuria and hematuria.

Salicylic Acid is destructive to the torula, prevents alcoholic fermentation, also that caused by the organic ferments, (pepsin, ptyalin, etc.). In solutions containing bacteria, it will prevent their development, if in the proportion of 1 per cent.; and in that of 1 in 60 it will destroy them when in full activity.

SALICYLATE OF SODIUM is remarkably antipyretic in doses of gr. xv given 4 or 5 times in 24 hours. It is a powerful diaphoretic, and an efficient cholagogue, and it is supposed to possess the curious property increasing the fluidity of the bile, at the same time that it promotes secretion,—other cholagogues increasing the proportion of solids therei (Brunton.) It has no antiseptic power unless in association with a stro mineral acid, which will liberate the salicylic acid.

LOL is antiseptic, antipyretic and germicide, in a higher degree than
r of its constituents. As an antipyretic in fever it stands next after
pyrine, and it acts with such force as to frequently depress the tem-
ture a degree or two below normal. It is sedative to the cerebro-
l system, and somewhat analgesic. It causes profuse sweating, and
few cases considerable depression has accompanied its antipyretic
loyment; but it is not toxic, and may be used freely in its proper
ge, which ranges from 5 to 60 grains, up to 2 or 3 drachms in the 24
s.

THERAPEUTICS.

LICIN and its derivatives are chiefly used in acute rheumatism, to
r temperature, relieve pain, and reduce articular swelling. They
nost suitable to strong, vigorous patients, and if not promptly efficient
should be abandoned. The acid is much used as an antipyretic in
s, especially those of septicæmic character. It is a useful local appli-
n in gangrenous wounds, eczema of the hands or feet, cancer, burns,
in fetid perspirations, in the last affection being used in solution with
x.

LICYLATE OF SODIUM is more soluble than the acid and less irritant
e stomach, while in doses about 50 per cent. larger it is equally effi-
t. It is employed in 3 to 5-grain doses internally after meals, to
t gastric fermentation, and to prevent acidity and flatulence. It is
instead of the acid in acute and chronic rheumatism, to relieve head-
s, and for phlegmasia alba, in which it is considered very efficient,—
in cases where there is a tendency to the formation of gall-stones.

LICYLATE OF LITHUM is also non-irritant and is supposed to act
rds uric acid in the same manner as the other salts of this metal. It
pected to be of especial value in acute rheumatism and rheumatic
.

LOL is a most efficient remedy for duodenal catarrh, catarrh of the
ducts and catarrhal jaundice; also in the bilious form of sick-head-
, and in some forms of neuralgia. Its greatest power is manifested
acute rheumatism, in which disease many clinicians maintain that it
no superior, if given in 15 to 30-grain doses, up to 2 drachms in the
ours, and continued for some time after the acute symptoms have
ided. It should prove an efficient disinfectant in catarrh of the blad-
as its constituents are excreted with the urine, and come in contact
the vesical mucous membrane for a considerable period of time.

ALVIA, Sage,—the leaves of *Salvia officinalis*, the common gar-
sage, a perennial plant of the nat. ord. Labiatæ, native in Southern
ope, but cultivated in our gardens for its strong, fragrant odor. The
es are about 2 inches long, finely crenulate, grayish-green, thick and

wrinkled; soft, hairy and glandular beneath, of aromatic odor and bitterish, astringent taste. They contain tannin, resin, etc., and a volatile oil which consists of *Salviol* ($C_{10}H_{16}O$), camphor and terpenes. Sage is a constituent of Vinum Aromaticum. There are no official preparations. Dose of the powdered leaves, gr. xx–xxx, in infusion.

Physiological Action and Therapeutics.

Sage is aromatic, stimulant, tonic, astringent, and a vulnerary. It was highly esteemed in ancient times, and even yet is popular as a domestic cure-all with many people. In an infusion it may be used as a beverage in febrile conditions and to check sweating, also for the night-sweats of phthisis. Like other members of the same class it has a slight influence over enteralgia and flatulence. It makes a good astringent and stimulating gargle.

SAMBUCUS, Elder,—the flowers of *Sambucus canadensis,* the common elder, a shrub of the nat. ord. Caprifoliaceæ, from 6 to 10 feet high, having small white flowers disposed in loose cymes of five divisions, the cream-colored corolla being whorl-shaped with five stamens on the tube. The berries are small, globular, and when ripe of a deep purple color. The plant contains a small quantity of a volatile oil, also a resin and valerianic acid. The common elder of Europe (S. nigra) is more of a tree, and is official in the B. P. There are no official preparations. Dose, gr. xxx–ʒj, in hot infusion.

Physiological Action and Therapeutics.

Elder-flowers are stimulant and diaphoretic, also perhaps diuretic in some degree. The berries are diaphoretic and laxative, while the inner bark is a hydragogue cathartic and in large doses emetic. Formerly the inspissated juice of the berries was employed as an alterative in rheumatism and syphilis, but at present the flowers are used only for flavoring purposes. Elder-flower Water (Aqua Sambuci, B. P.) is a nice vehicle for collyria and lotions.

SANGUINARIA, Blood-root,—is the rhizome, collected in autumn, of *Sanguinaria canadensis,* a perennial plant of the nat. ord. Papaveraceæ, which grows abundantly throughout the U. S., being one of the earliest and most beautiful of the spring flowers. It has a single white flower on an erect stalk, the petals often tinged with rose or purple. Leaf reniform, smooth, deeply lobed, yellowish-green above, paler beneath, and strongly marked with orange-colored veins. The rhizome is about 2 inches long and ⅖ths inch thick, cylindrical, horizontal, wrinkled, redlish-brown, fracture short, waxy, with numerous small red resin-cells, ark thin, odor slight, taste very bitter and acrid. It contains 3 alkaloids, —*Sanguinarine*, $C_{17}H_{15}NO_4$, which is probably identical with Chelerythrine (see CHELIDONIUM), *Porphyroxine*, and *Puccine*, combined with Chelidonic and Sanguinarinic Acids,—also resin, gum, albumen, sugar, etc. The salts of its alkaloids are of brilliant red and orange colors and are all soluble in water. Dose of the powdered root as expectorant, gr. j–v; as emetic, gr. x–xx, best given in pill.

Preparations.

Extractum Sanguinariæ Fluidum,—Dose, ♏j–v as expectorant and stimulant; ♏x–lx as emetic, cautiously.

Tinctura Sanguinariæ,—strength 15 per cent. Dose, as expectorant, ♏v–ʒj, as emetic ʒj–iij.

Acetum Sanguinariæ,—has of Sanguinaria 10, in Diluted Acetic Acid 90. Dose, ♏x–xxx; as an emetic, ʒij–℥ss.

Sanguinarina, Sanguinarine, $C_{17}H_{15}NO_4$ (Unofficial),—is the chief alkaloid and probably the active principle of the plant. Dose as an expectorant, gr. $\frac{1}{12}$–$\frac{1}{8}$; as an emetic, gr. ½ repeated in 10 minutes will produce vomiting after the second or third dose.

PHYSIOLOGICAL ACTION.

Sanguinaria is sternutatory, sialagogue, expectorant and emmenagogue, a systemic emetic, a cardiac paralyzer, a violent irritant, an acro-narcotic and an alterative. Its taste is bitter and acrid. It causes violent sneezing when inhaled, increases secretion by irritating the secretory organs as it is eliminated, and in full doses produces salivation, catharsis and vomiting with great depression. Overdoses are violently irritant, the heart's action being at first increased, together with the arterial tension, then markedly depressed, and finally paralyzed by stimulation of its inhibition. The reflexes are lowered by paralysis of the spinal centres, nuscular contractility impaired, the pupils dilated, temperature lowered, old sweats, great thirst and collapse supervene, and death occurs by aralysis of the cardiac and respiratory centres, often preceded by conulsions. Locally used, Sanguinaria is a feeble escharotic.

Antagonists and Incompatibles.

Opium, Amyl Nitrite, Atropine, etc., to antagonize the depression of the circulation and e local irritant action. Incompatibles are alkalies, tannin, and most of the metallic lts.

THERAPEUTICS.

As a tonic to the stomach and a stimulant to the liver Sanguinaria or s active principle is well employed in small doses (gtt. iij of the tincure or gr. $\frac{1}{12}$ of the alkaloid) for atonic dyspepsia, duodenal catarrh and atarrh of the biliary ducts with jaundice. Respiratory affections are ften remarkably amenable to its influence, particularly chronic nasal atarrh, asthma and acute bronchitis. In these affections expectorant doses are the best, namely, gtt. x of the tincture, and in the former the powder locally as a sternutatory. A decoction is a very efficient gargle in the sore-throat of scarlet fever. Sanguinaria is a very serviceable remedy in chronic bronchitis and in amenorrhœa of functional character, also in functional impotence from irritability of the organs, with daily losses and relaxation of the genitalia. By many practitioners it is considered a specific emetic in croup, but others look upon it with disfavor as too uncertain and harsh in its action. It has been thought to have alterative properties, and hence is frequently used with Stillingia and other plants in the treatment of strumous and syphilitic affections. In pneumonia of typhoid type and in pleuro-pneumonia it has undoubtedly been of great service in many cases.

Locally, the powdered root is well employed as an application to foul ulcers and fungous granulations, and by insufflation to nasal polypi, and for chronic hypertrophy of the nasal mucous membrane.

Sanguinarine has been used with good results in pneumonia, bronchitis and atonic dyspepsia. Doses of gr. $\frac{1}{12}$ to $\frac{1}{8}$ are expectorant without irritating the stomach; and still smaller doses (gr. $\frac{1}{20}$ to $\frac{1}{10}$) are stimulating to the gastric and intestinal secretions.

SANTALUM ALBUM, White Sandalwood,—is the source of the official Oil of Santal (see below), but is not itself official. It is a tree of the nat. ord. Santalaceæ, having its habitat in India but now nearly exterminated there;—*Santalum citrinum*, the yellow sandalwood, from the Sandwich and Feejee Islands, is more commonly met with in commerce.

Preparations.

Oleum Santali, Oil of Santal, Oil of Sandalwood,—a volatile oil distilled from the wood of *Santalum album*; a pale-yellow liquid, of sp. gr. about 0.945, soluble in alcohol, of peculiar and aromatic odor, pungent taste and acid reaction. Dose, ♏x–xxx, in emulsion or capsule.

Extractum Santali Fluidum (Unofficial),—made with alcohol as a menstruum. Dose, ℨj–iij.

Physiological Action and Therapeutics.

Sandalwood is a very agreeable perfume. The Oil is astringent to mucous membranes, producing dryness of the fauces, thirst, colic, and a sense of fulness in the renal regions. In concentrated form it is a local irritant, but the effects of large doses have not been studied. It is extensively used in chronic bronchitis and in gonorrhœa, forming the contents of proprietary capsules which are sold for the cure of the latter disease in all drug stores. As found in the shops it is extensively adulterated with Oil of Cedar, and hence is a very unreliable remedy.

SANTALUM RUBRUM, Red Saunders,—is the wood of *Pterocarpus santalinus*, a tree of the nat. ord. Leguminosæ, native in India. It comes as a dark reddish-brown, heavy, coarse wood, in chips or as a coarse powder, nearly inodorous and tasteless, not imparting any red color to water when macerated in it, but coloring alcohol, ether and alkaline solutions a bright red. The wood has no medicinal properties and is employed solely for the purpose of coloring alcoholic preparations. It is a constituent of Tinctura Lavandulæ Compositus.

SANTONICA, Levant Wormseed,—the unexpanded flowerheads of *Artemisia maritima*, var. *Stechmanniana*, a small, perennial plant of the nat. ord. Compositæ, which grows in Asia Minor, Turkestan, etc., and contains a volatile oil and the peculiar, crystalline principle *Santonin* (see below).

Flowerheads about $\frac{1}{12}$ inch long, pale greenish-brown, smooth, resembling seeds in appearance, but consisting of imbricated involucral scales with a green midrib, enclosing 4 or 5 tubular florets; odor strong and peculiar, somewhat camphoraceous, taste aromatic and bitter. Dose, gr. x–lx.

Preparations.

Santoninum, Santonin, $C_{15}H_{18}O_3$,—the neutral principle prepared from Santonica. Occurs in colorless, prismatic crystals, turning yellow on exposure to light, odorless, of bitter after-taste, and neutral reaction, nearly insoluble in cold water, but soluble in 250 of boiling water, in 40 of alcohol, 3 of boiling alcohol, 160 of ether, 4 of chloroform, also in solutions of the alkalies. Dose, gr. ¼-j for a child, gr. j–v for an adult, not repeated too soon, as the action of the drug is slow.

Sodii Santoninas, Santoninate of Sodium, $2NaC_{15}H_{19}O_4.7H_2O$,—colorless, rhombic crystals, turning yellow on exposure to light, slightly efflorescent, of saline taste and slightly alkaline reaction, soluble in 3 of water and in 12 of alcohol at 59° F., in 0.5 of boiling water and in 3.4 of boiling alcohol. Dose, gr. ij–x, as per age.

Trochisci Sodii Santoninatis,—each troche contains of the preceding gr. j, with sugar, tragacanth and orange-flower water. Dose, ij–x, as per age.

Trochisci Santonini (Unofficial),—each troche contains gr. ss of Santonin. Dose, j–v, as per age.

Santonin and its preparations are sensitive to light and should be kept in amber-colored bottles tightly corked.

PHYSIOLOGICAL ACTION.

SANTONIN is anthelmintic to the round-worm (Ascaris lumbricoides), also but in less degree to the thread-worm (Oxyuris vermicularis). It is taken into the blood as Santoninate of Sodium, and affects the cerebral faculties and the vision, objects appearing at first blue, green or red, then yellow (chromatopsia), often succeeded by blindness for a week or more. Large doses disturb the consciousness of the patient, produce a sort of intoxication, tremors, weakness, with enfeebled respiration and slowing of the pulse, coldness of the surface, vomiting, sweating, mydriasis, convulsions and death from failure of respiration. A dose of 2 grains is said to have proved fatal to a feeble child of five years old. It is excreted by the kidneys, coloring the urine if acid a greenish-yellow, if alkaline a reddish-purple, and produces considerable enuresis.

SANTONINATE OF SODIUM acts similarly, but being more soluble it is more rapidly absorbed and eliminated, and does not produce the constitutional symptoms of the drug in so marked a degree.

THERAPEUTICS.

As an anthelmintic Santonin is the most certain agent against the round-worm, and is best administered in powder with Calomel at bedtime after a day of fasting, a Senna-draught or a dose of Castor Oil being used the following morning. It also acts fairly well in suppository against the thread-worm, but is inoperative against tape-worm. Some observers consider that it is more promptly efficient when given in Castor Oil, and that the oil lessens the risk of evil after-effects. It has also been prescribed with great benefit for nocturnal incontinence of urine, and for certain eye affections, particularly amaurosis from atrophic or inflammatory changes in the retina and optic nerve. It should never be given to children during a fever, nor when the bowels are constipated, for fear of toxic results.

SAPO, Soap,—is soap prepared from Soda and Olive Oil; a white solid, hard yet easily cut when fresh, of slight, peculiar odor free from rancidity, a disagreeable, alkaline taste, and an alkaline reaction, readily soluble in water and in alcohol. It is well represented by the best "white Castile soap."

Sapo Viridis, Green Soap,—is soap prepared from Potassa and fixed oils; a soft, greenish-yellow, unctuous jelly, having a peculiar odor and an alkaline reaction, soluble in water and in alcohol, does not impart an oily stain to paper. Incinerated it yields an ash which is very deliquescent. Green Soap is a bad name for it, as its color is usually brown.

Saponification is a process of double decomposition between a fat (stearate, palmitate or oleate of glyceryl) and an alkali, in which glycerin and the metallic salt of the fatty acid are formed. The glycerin, not being saponifiable, is set free, but the fatty acid (stearic, palmitic or oleic) unites with the salifiable base to form soaps, which are therefore mixed stearates, oleates and palmitates of various bases. Nearly all soaps are oleates or palmitates (or both) of sodium or potassium (or both). Hard soaps are soda soaps, soft soaps are potassium soaps. [Compare the articles Oleum Olivæ, Adeps, Acidum Oleicum, Glycerinum, etc.]

INSOLUBLE SOAPS are combinations of the oily acids with earths and metallic oxides. Two of them are official, viz.,—the Soap of the Monoxide of Lead (Emplastrum Plumbi) and the Soap of Lime (Linimentum Calcis).

Unofficial Soaps.

Sapo Mollis, Soft Soap,—official in the Br. Phar., is made with Olive Oil and Potash the solution of the alkali being present in excess. It is often adulterated with starch.

Sapo Animalis, Curd Soap,—official in the Br. Phar.,—is made with Soda and a purified animal fat, consisting chiefly of Stearin. Used in pills and suppositories.

Sapo Medicatus,—official in the Fr. Codex,—is a Soda soap prepared from expresse Almond Oil.

Preparations.

Emplastrum Saponis, Soap Plaster,—has of Soap 10 parts, Lead Plaster 90, Water q. s.

Linimentum Saponis, Soap Liniment,—has of Soap 10 parts, Camphor 5, Oil of Rosemary 1, Alcohol 70, Water q. s. ad 100 parts. *Opodeldoc* is a similar preparation.

Tinctura Saponis Viridis,—has of Green Soap 65 parts, Oil of Lavender 2, Alcohol q. s. ad 100 parts. For external use.

Soap is also an ingredient of Chloroform Liniment and several of the official pills.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

SOAP is a laxative, antacid and antilithic; externally it is a stimulating discutient, and is used for cleansing the skin, removing fatty substances and softening the epidermis, but if too long applied it may prove decidedly irritant. It is a good antidote in poisoning by acids, and should be administered freely in such cases until more energetic alkalies can be obtained. In aqueous solution it make a useful enema for constipation, or a plug of soap may be inserted into the rectum.

GREEN SOAP is a powerful detergent stimulant and is much employed in skin diseases, especially eczema rubrum, in which the tincture is well rubbed on, the diseased skin well washed and then covered with a bland ointment. The tincture is the most elegant form for use, and may be diluted with three parts of alcohol for shampooing the scalp.

The Liniment is used with friction in sprains, bruises and stiff joints, being a little more stimulating than Camphor-liniment. It makes a good basis for extemporaneous liniment prescriptions.

SARSAPARILLA,—is the root of *Smilax officinalis*, *Smilax medica*, and of other undetermined species of *Smilax*, plants of the nat. ord. Smilaceæ, growing in Mexico, Central America, Brazil, etc. There are six commercial varieties on the market, which are generally put up in differently formed bundles. The roots are about as thick as a goose-quill, reddish-brown, several feet in length, covered with rootlets and folded in bundles about 18 inches long, taste mucilaginous, bitter and acrid. It contains starch, resin, oxalate of calcium, an essential oil, and an acrid neutral principle named *Parillin* or *Smilacin*, which when acted on by dilute sulphuric acid affords another principle, *Parigenin*.

Preparations.

Extractum Sarsaparillæ Fluidum,—Dose, ʒ ss–ʒ j.

Ext. Sarsaparillæ Compositum Fluidum,—contains Sarsaparilla 75, Glycyrrhiza 12, Sassafras bark 10, Mezereum 3, Glycerin 10, Water and Alcohol up to 100. Dose, ʒ ss–ʒ j.

Syrupus Sarsaparillæ Compositus,—Sarsaparilla 150, Guaiacum wood 20, Pale Rose 12, Glycyrrhiza 12, Senna 12, Sassafras 6, Anise 6, Gaultheria 6, Sugar 600, Alcohol and Water up to 1000 parts. Dose, ʒ j–℥ ss. A good vehicle for Potassium Iodide.

Decoctum Sarsaparillæ Compositum,—Sarsaparilla 10, Sassafras 2, Guaiacum Wood 2, Glycyrrhiza 2, Mezereum 1, Water q. s. ad 100 parts. Dose, ℥ j–iv.

Syrup of Sarsaparilla (Unofficial),—so much used in flavoring soda-water, is a mixture of the oils of sassafras and gaultheria.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Those who believe that Sarsaparilla has any action ascribe to it properties as a diuretic, diaphoretic, tonic and alterative. So far careful physiological experiments with the drug and its principle have given negative results. It has been used as a so-called "blood-purifier" in scrofula, chronic abscesses, necrosis, old ulcers, many cutaneous diseases, etc., but is generally combined with other agents of undoubted activity. The compound decoction is considered a good agent in tertiary syphilis, especially in debilitated subjects; while the other preparations are commonly employed as vehicles for Iodide of Potassium and Bichloride of Mercury in syphilis of any form. Whenever used, the compound decoction will give the best results, the hot water and its other constituents being each of medicinal value.

SASSAFRAS,—is the root-bark of *Sassafras officinalis*, a tree of the nat. ord. Lauraceæ, growing throughout the U. S., and occurs in irregular fragments of a bright, rust-brown color, strongly fragrant, taste sweetish, aromatic and somewhat astringent. The volatile oil is official.

Sassafras Medulla, Sassafras Pith,—is the pith of the tree describe above. Occurs in slender, cylindrical pieces, often curved or coile light, spongy, white, inodorous, insipid. Macerated in water it forms mucilaginous liquid which is not precipitated on the addition of alcoho

Preparations.

Mucilago Sassafras Medullæ,—has of the pith 2 parts in 100 of water. Dose, indefinit

Oleum Sassafras,—is a volatile oil distilled from Sassafras,—a colorless or yellowi liquid, having the odor of Sassafras, a warm, aromatic taste and a neutral reaction, readi soluble in alcohol. Sp. gr. about 1.090. Treated with cold nitric acid it becomes of dark-red color, and is finally converted into a red resin. Dose, ♏j–iv.

Infusum Sassafras (Unofficial),—a popular "tea" which may be drank ad libitum.

Sassafras is a constituent of the three compound Sarsaparilla preparations.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Sassafras is a stimulant diaphoretic when used in quantity of the h infusion. It enjoys a popular reputation as a "blood-purifier," and h a destructive influence on infusoria. It is employed chiefly in combin tion with Sarsaparilla and Guaiacum in cutaneous disorders and rheumat and syphilitic affections. The mucilage of the pith is an excellent demu cent drink in acute gastritis or enteritis, or in poisoning by irritant corrosive agents. It may also be used in extemporaneous prescriptions hold insoluble substances in suspension and for flavoring purposes. T oil is chiefly used for flavoring in mixtures and confectionery. The syr popularly known as "Sarsaparilla" is composed of Oil of Sassafras a Oil of Gaultheria.

SCAMMONIUM, Scammony,—is a resinous exudation from the root of *Convolvulus Scammonia*, a plant of the nat. ord. Convolvulaceæ, growing chiefly in Syria and Asia Minor. It occurs in irregular, angular pieces or circular cakes, of a greenish-gray or blackish color, a peculiar, cheese-like odor, and a slightly acrid taste; easily triturated into a dirty-gray powder, and with water yields a smooth, greenish emulsion. It contains about 80 per cent. of *Resin*, with gum, sugar, starch, etc. The active principle, *Jalapin*, is probably identical with the Convolvulin of Jalap, and is contained in the root, the resin, etc. Dose, gr. v–x.

Preparations.

Resina Scammonii, Resin of Scammony,—is wholly soluble in ether. Dose, gr. iij–viij.

Extractum Colocynthidis Compositum,—(see *ante*, page 185) contains 14 per cent. of Resin of Scammony, and is an ingredient of the Compound Cathartic Pill.

Physiological Action and Therapeutics.

Scammony is an active cathartic, stimulating the liver and the intestinal glands, and causing free purgation in a few hours, with considerable griping. Its solution in the bile is necessary to its action, and it combines with the soda in that secretion. Though quite drastic in action it is somewhat uncertain as a purgative and is generally employed in combination with similarly acting agents. It is anthelmintic against the tapeworm, and in overdoses produces a high degree of irritation.

It is used as a drastic purgative for children with Calomel or Potassium Sulphate, when an active cathartic is indicated. In the same way it is the appropriate agent on the principle of derivation in dropsies and cerebral affections, also in torpid states of the intestines with much slimy intestinal mucus; but it is contraindicated in cases attended by irritability of the stomach and bowels.

SCILLA, Squill,—is the sliced bulb of *Urginea Scilla*, or *Scilla maritima*, a perennial plant of the nat. ord. Liliaceæ, growing on the shores of the Mediterranean. It comes in narrow segments about two inches long, of yellowish-white or reddish color, slightly translucent, inodorous, mucilaginous, bitter and acrid to the taste. Its active principle has not yet been definitely isolated, but it is probably the acrid, bitter glucoside *Scillitoxin*. Other principles have been obtained and named *Scillipicrin*, *Scillitin* and *Scillin*, also *Sinistrin*, a peculiar carbohydrate or mucilage, and the usual constituents of plants. Dose, in powder, gr. j–iij.

Preparations.

Extractum Scillæ Fluidum,—Dose, ♏j–v.

Tinctura Scillæ,—15 per cent. Dose, ♏v–xxx.

Acetum Scillæ,—10 per cent. Dose, ♏x–ʒj.

Syrupus Scillæ,—has of the Acetum 40 parts with Sugar 60 and Water. Dose, ʒss–ij.

Syrupus Scillæ Compositus,—has of Squill 120, Senega 120, Tartar Emetic 3, Sugar 1200, Calcium Phosphate 9, Diluted Alcohol and Water up to 2000 parts. Is known as *Coxe's Hive Mixture*, and each fluid ounce contains about gr. ¼ of Tartar Emetic. Dose, ♏v–ʒj, for children, the latter being an emetic dose; as an expectorant for adults ♏xx–xxx.

PHYSIOLOGICAL ACTION.

In small doses Squill is expectorant, in larger doses emetic and diuretic, and in overdoses it is a violent irritant poison, producing nausea, vomiting, purging, gastro-enteritis, strangury, bloody urine, perhaps suppression of urine, paralysis and convulsions, with death by paralysis of the heart in systole. Medicinal doses slow the heart, making the pulse stronger and slower, raising the arterial tension, and increasing the flow of urine (like Digitalis). Its active constituents diffuse into the blood, and its systemic effects follow on its application to the skin and seem to be exerted upon the mucous membrane of the secretory organs, especially affecting the bronchial, gastro-intestinal and genito-urinary.

THERAPEUTICS.

Squill is employed in medicine for its expectorant and diuretic effects. It is especially applicable in cardiac dropsy, combined with Digitalis or the saline diuretics, and in chronic bronchitis associated with Ipecac or Ammonia, Asafœtida, Benzoin, etc. It is also used in croup, but is usually combined in this affection with some other emetic, as Tartar Emetic in the Compound Syrup, a mixture which may produce very depressing effects and should be used with caution. In whooping-cough and other irritant coughs with tickling sensations in the throat the Syrup or Vinegar of Squill is often of great service.

The actions and uses of Squill should be studied in connection with those of Digitalis and Ipecacuanha.

SCOPARIUS, Broom,—the tops of *Sarothamnus Scoparius*, or Broom-plant, a common garden shrub of the nat. ord. Leguminosæ, having small, downy leaves and numerous large golden-yellow flowers. It occurs in thin, flexible twigs, usually free from leaves, nearly smooth, tough, of a peculiar odor when bruised and a disagreeably bitter taste. It contains *Scoparin*, $C_{21}H_{22}O_{10}$, a neutral, crystallizable principle; and *Sparteine*, $C_{15}H_{26}N_2$, a volatile, liquid alkaloid, having no oxygen, but possessing very decided basic qualities and being highly poisonous. There are no official preparations, but a decoction may be prepared in the proportion of ℥j to the pint, and administered in doses of ʒj every three hours until its diuretic effect is produced.

SPARTEINÆ SULPHAS, Sulphate of Sparteine,—Dose, gr. $\frac{1}{16}$–$\frac{1}{2}$, hypodermically;—gr. ½–ij per orem. Small doses, gr. $\frac{1}{16}$–$\frac{1}{4}$, every 5 hours for cardiac action;—larger, gr. j–ij, for diuresis. (Clarke.) Larger doses are necessary, say gr. iss–iij, ter die. (Prior.)

PHYSIOLOGICAL ACTION.

room-tops are diuretic and laxative, also emetic and cathartic in large
s. In the form of decoction they have long been a favorite diuretic
vehicle for other diuretics, in the treatment of dropsies both cardiac
renal, but are considered most reliable in the dropsy of renal origin.
ARTEINE has been thought to resemble Coniine in its action, paraly-
the end-organs of the motor nerves and vagi, lowering the reflex ex-
bility of the cord, and causing death by paralyzing the respiratory
re in the medulla. Recent observations, however, place it in the
italis group, and in the front rank among the members thereof.
small doses Sparteine slows and strengthens the heart-beats, and
s arterial tension, at the same time increasing the cutaneous and renal
ulation, so that the surface becomes flushed and moist, and in some
s marked diuresis and diaphoresis occur. The respiration, at first
kened, is soon slowed and deepened,—the patient having a sense of
eased warmth and well-being, and if suffering from irregular cardiac
on, præcordial distress and dyspnœa, these symptoms are promptly
ved. If the pulse has been abnormally slow Sparteine will quicken
hough its general action is to slow the cardiac rate. An overdose
gs on marked palpitation, a small and rapid pulse of very high ten-
, præcordial pain and a sense of "tightness" about the chest, with
ety, and a feeling of intense debility, perhaps even muscular tremor.
th occurs by asphyxia from depression of both the centre and the
cles of respiration.
he action of Sparteine upon the circulation is manifested quickly as
pared with that of other similarly-acting drugs. In ½ hour after its
stion the pulse is markedly slower,—in another ½ hour the arterial
ion rises, and both effects last from 5 to 6 hours. When taken regu-
for several days or weeks its influence remains for nearly a week after
iscontinuance. There is, however, no danger of cumulative action,
though the dosage employed has varied from gr. $\frac{1}{16}$ every 4 hours, to
xij in 24 hours, no toxic action was observed, nor was there any evi-
ce of accumulation, even when given continuously for 3 to 4 months.
rke.) Only from a dose of gr. xxxj were evil effects observed. (Prior.)
s diuretic power on healthy persons is denied by some observers and
med by others, though all acknowledge it in disease. It is accompa-
l by increased excretion of urea,—is due to the increase of blood-
sure both behind and in front of the renal circulation,—and is
duced only by large doses, gr. ½–gr. ij.
parteine acts directly on the cardiac muscle, as well as upon the inhib-
y apparatus, thus giving greater force to the cardiac contractions, and
ulating (generally slowing) the pulse-rate. It also stimulates the vaso-
tor centre to contract the vessels throughout the splanchnic area, thus

increasing the circulation in the skin and kidneys, and raising arterial tension generally.

Therapeutics.

Broom-tops are a favorite remedy for dropsies of cardiac origin, and for the general anasarca of chronic kidney disease, but are inadmissible in acute renal affections or where there is pulmonary congestion or inflammation.

Sparteine has been employed with very great benefit in cardiac affections requiring stimulation of the heart's action with the smallest possible increase of arterial tension, relief of dyspnœa, præcordial pain, palpitation and œdema. In such cases small doses, gr. $\frac{1}{16}$–$\frac{1}{4}$, are best, and as the influence of the drug is remarkably sustained, they need not be repeated oftener than once in 5 or 6 hours. It has given the most marked satisfaction in mitral regurgitation, in which it relieves all the symptoms; also in mitral stenosis, when the pulse is small, weak and irregular. In aortic regurgitation, it quiets excited action of the heart, without unduly prolonging the systole, and is of great value. Used in chronic Bright's disease, with hypertrophy and high arterial tension, it stimulates the heart without increasing the tension. In exophthalmos, it gives remarkable relief to all the symptoms. For cardiac palpitation and arhythmia, small doses are of great service. In asthma it is of signal benefit, cutting short the paroxysms, and rendering their recurrence much less frequent. In the opium-habit it is used at periods of depression during the treatment, to overcome the "plateau" shown in the sphygmograph trace, by stimulating the cardiac action. (Jennings.) For this purpose, doses of gr. iss–iij three or four times daily are necessary. (Prior.)

SCUTELLARIA, Skull-cap,—is the plant *Scutellaria lateriflora*, an indigenous, perennial herb of the nat. ord. Labiatæ, growing in moist places and along ditches; having small, pale-blue flowers disposed in long, leafy racemes, of slight odor and bitterish taste. It contains a little volatile oil, traces of a bitter principle, besides fat, tannin, sugar, etc.

Preparation.

Extractum Scutellariæ Fluidum,—Dose, ʒ ss–ij.

Physiological Action and Therapeutics.

Scutellaria produces no very obvious effects when taken internally. By some practitioners it is said to have tonic, nervine and antispasmodic powers, and it has been used in domestic practice to calm the nervous system in diseases characterized by restlessness, tremors, spasms, twitching of the muscles, hyperæsthesia, etc., as chorea, delirium tremens, nervous exhaustion from fatigue or over-excitement, hydrophobia, hysteria and

he Scutellarin of the Eclectics is not a proximate principle,
ct precipitated by alum from a concentrated aqueous tincture.
dose of from one to four grains.

A,—is the root of *Polygala Senega*, an indigenous, perennial
nat. ord. Polygalaceæ, having small, white flowers in a close
summit of the stem. The root is about 4 inches long, with a
n and tortuous, spreading branches, thick bark inclosing a
owish wood; odor slight but unpleasant, taste at first sweetish,
acrid. Its principal constituent is the glucoside *Senegin*,
hich is identical with Saponin, and closely allied to Digitonin.
, amorphous powder, readily soluble in alcohol and hot water,
oapy emulsion when mixed with boiling water, and decom-
Cl into sugar and *Sapogenin*, $C_{14}H_{22}O_2$.

Preparations.

Senegæ,—Dose, gr. v–x.
Senegæ Fluidum,—Dose, ♏x–xx.
negæ,—has of the fluid extract 160, Aqua Ammoniæ 4, Sugar 600, Water
Dose, ʒj–ij.
llæ Compositus,—contains 6 per cent. of Senega. (See page 360.) Dose for
ʒj; for adults as an expectorant, ♏xx–ʒss.

PHYSIOLOGICAL ACTION.

a stimulating expectorant, a diuretic and a diaphoretic. It
tion of the throat, with some salivation and gastro-intestinal
n inclination to cough, increased bronchial secretion, and
e diuresis and diaphoresis. Inhaled as a snuff it is very irri-
nucous membrane of the nose, causing cough, sneezing and
. SENEGIN is violently irritant and a powerful depressant to
essels, nervous and muscular systems. It is excreted by the
nucous membrane, the kidneys and the skin, all of which it
nd in large quantity irritates.

THERAPEUTICS.

f Senega is chiefly that of a stimulating expectorant in chronic
the second stage of acute bronchitis, typhoid pneumonia,
up, and as a diuretic in dropsy due to renal disease. It re-
ightness and oppression experienced in subacute chest affec-
es the cough and rapidly promotes expectoration. When the
gh and scanty this remedy is of no value. It has been used
enefit in amenorrhœa, given in saturated decoction for two
the expected period. In chronic rheumatism and in rheu-
sis its stimulating and diaphoretic powers have been of great
egin has been successfully used in 2-grain doses as a remedy
emorrhage.

SENNA,—the leaflets of *Cassia acutifolia* (Alexandria Senna), and of *Cassia elongata* (Indian Senna), shrubs of the nat. ord. Leguminosæ, growing in Egypt and India. The leaflets are from 1 to 2 inches long, lanceolate, brittle, dull green, of peculiar odor, and nauseous, bitter taste. They contain an amorphous glucoside, *Cathartic Acid*, $C_{180}H_{192}N_4SO_{82}$, which forms salts with bases and may be decomposed into glucose and Cathartogenic Acid. Other constituents are *Sennapicrin* and *Sennacrol*, both glucosides;—*Catharto-mannite*, a peculiar unfermentable sugar; also a coloring matter allied to Chrysarobin (see page 174), and various vegetable salts.

Preparations.

Extractum Sennæ Fluidum,—Dose, ʒj. An excellent preparation.

Syrupus Sennæ,—has of Senna 33 parts, Sugar 60, Alcohol 4, Oil of Coriander and Water to 100 parts. Dose, ʒss–ij.

Confectio Sennæ,—has of Senna 10, Coriander 6, Cassia Fistula 16, Tamarind 10, Prune 7, Fig 12, Sugar 50, Water 60 parts. Is sold under the titles "Tamar-Indien," "Tropical Fruit Laxative," etc. Dose, ʒj–ij.

Infusum Sennæ Compositum, Black Draught,—has of Senna 6, Manna 12, Magnesium Sulphate 12, Fennel 2, Water 100 parts. Dose, ℥j–iij.

Pulvis Glycyrrhizæ Compositus (see *ante*, page 228),—contains 18 per cent. of Senna. Dose, gr. xx–ʒj.

Syrupus Sarsaparillæ Compositus (see *ante*, page 357),—contains 12 per 1000 of Senna. Dose, ʒj–iv.

PHYSIOLOGICAL ACTION.

Senna is a very efficient and safe cathartic, producing, when taken internally, copious yellow stools in about 4 hours, with considerable griping and flatulence, which may, however, be lessened by combining it with carminatives. Its action is chiefly expended on the small intestine, and it increases both peristalsis and secretion. It has no irritant qualities in ordinary medicinal doses, and does not produce hypercatharsis, nor leave constipation as an after result. Its infusion injected into the veins causes both vomiting and purging; and in large doses per orem it produces nausea, vomiting, flatulence, excited pulse, drastic purgation with severe tenesmus, but its effects are never poisonous. It may produce hemorrhoids and increase the menstrual flow in women. Given to a nursing mother her milk will acquire purgative powers. In some very susceptible persons the odor of the leaves or of the infusion will cause an evacuation of the bowels. Its odor and taste are particularly disagreeable, especially when administered in infusion.

THERAPEUTICS.

Senna would probably take rank as our best and safest cathartic but for the nauseousness of its smell and taste. It is a favorite laxative in England for children, and is used with great benefit in habitual constipation or where prompt evacuation of the bowels is required. In hemorrhoids and anal fissures it is employed to produce soft and easy motions; but if a tendency to hemorrhoids exists, the use of this drug in cathartic doses will cause irritation of the part and induce an acute attack. For the same reason it is contraindicated in any such conditions as hemorrhage or inflammation of the intestinal mucous membrane, hemorrhoids, menorrhagia, abortion, etc. The least disagreeable of its preparations are the Confection of Senna and the Compound Liquorice Powder.

SERPENTARIA, Virginia Snake-root,—is the rhizome and rootlets of *Aristolochia Serpentaria* and of *Aristolochia reticulata*, indigenous herbaceous plants of the nat. ord. Aristolochiaceæ, growing in rich, shady woods, with purple flowers arising from joints near the root. The rhizome is about an inch long, thin and bent, having on the upper side short stem-remnants, on the lower side numerous thin, branching rootlets; odor and taste are aromatic and camphoraceous. It contains a volatile oil, a camphor-resin and a bitter principle named *Aristolochine*, which is soluble in both alcohol and water. All its preparations should be made from the fresh root, as it deteriorates by keeping.

Preparations.

Extractum Serpentariæ Fluidum,—Dose, ♏x–xxx.

Tinctura Serpentariæ,—10 per cent. Dose, ℥ss–ij.

Tinctura Cinchonæ Composita,—has 2 parts of Serpentaria in 100. (See *ante*, page 177). Dose, ℥j–ij.

PHYSIOLOGICAL ACTION.

Serpentaria is a stimulant expectorant and tonic, also a cardiac stimulant, a diaphoretic, diuretic, emmenagogue, aphrodisiac, and somewhat of an antiperiodic. Its taste is warm and pungent, its odor characteristic. Small doses promote appetite and digestion, increase the bronchial and intestinal secretions, the action of the heart, the cutaneous circulation and the surface temperature, and produce considerable mental exhilaration. Large doses are irritant, causing nausea and vomiting, vertigo and headache, colic, borborygmi, rectal tenesmus, flatulent distention and frequent but not watery stools. The irritant action seems to produce gas rather than fluid. Pruritus ani and hemorrhoids are occasionally caused by its use.

THERAPEUTICS.

Serpentaria is chiefly employed as a vehicle for other stimulant drugs, but has many uses of its own. In bronchial affections it is extremely valuable as a stimulating expectorant. In typhoid pneumonia it is a good vehicle for carbonate of ammonium, and in the exanthemata is extremely useful when much depression exists. It is indicated in typhoid conditions generally, and in the amenorrhœa of anæmia and chlorosis it is an efficient emmenagogue in many cases. It will often restore the waning sexual power in functional impotence, while in bilious vomiting it frequently checks the nausea and settles the stomach. It is used as a vehicle for Cinchona in remittent fever. In diphtheria, scarlatina, etc., the infusion forms an excellent gargle. Its diaphoretic and diuretic properties, though slight, are sometimes of avail in chronic rheumatism.

SESAMI OLEUM, Oil of Sesamum, Benne Oil,—is a fixed oil expressed from the seeds of *Sesamum indicum*, or Benné plant (nat. ord. Pedaliaceæ), which is a native of India, but is cultivated in the southern portion of the U. S. It is a yellowish or yellow, oily liquid, inodorous or nearly so, having a bland, nut-like taste and a neutral reaction. It is a bland fixed oil, very similar in its properties to olive oil, and may be used for the same purposes. It is rich in Olein (76 per cent.) and keeps better than olive oil. It is chiefly employed as a hair-oil.

SEVUM, Suet,—is the internal fat of the abdomen of *Ovis Aries* (the Sheep), purified by melting and straining. It should be kept in well-closed vessels and not used after it has become rancid, as it will on exposure to air. It is a white, smooth, solid fat, of bland taste and neutral reaction, soluble in 24 of boiling alcohol, 60 of ether, and slowly in 2 of benzin. It consists chiefly of Stearin, but also has Palmitin and Olein, and is a constituent of Unguentum Hydrargyri and Unguentum Picis Liquidæ. It is a harder fat than lard and more liable to turn rancid. It is used in ointments and liniments to give them greater consistency, but may be applied alone as a dressing to ulcers. In physiological action and therapeutics it follows the other oils and fats (see *ante*, pages 282, 290).

SILICATES of Sodium (Na_2SiO_3) of Potassium (K_2SiO_3), and of Magnesium ($2MgO3SiO_2$) are used in medicine and surgery, a solution of the Silicate of Sodium being official.

Liquor Sodii Silicatis, Soluble Glass Solution,—is a semi-transparent, colorless or yellowish, viscid liquid, odorless, of sharp saline and alkaline taste and alkaline reaction, of sp. gr. 1.300 to 1.400. A small quantity should not produce any caustic effect when applied to the skin. It usually contains about 20 per cent. of Silica and 10 per cent. of Soda, and is used on bandages to make immovable dressings, being lighter than plaster-of-Paris and stronger than starch.

Liquor Potassii Silicatis (Unofficial),—also known as Soluble Glass Solution,—is used for immovable dressings in the same manner as the preceding. A mixture of 2 parts of this solution with one of the soda salt solution is said to set more quickly and firmly than either solution separately. Diluted (1 to 4) the solution of the Potassium Silicate has been applied locally in erysipelas, gonorrhœa, cystitis, vaginitis, etc., as an antiseptic, and with good results.

Magnesii Silicas Hydratus, Hydrated Silicate of Magnesium, Meerschaum, $2MgO, 3SiO_2+2H_2O$ (Unofficial),—a mineral used for the manufacture of smoking-pipes, and employed in France as a substitute for Bismuth Subnitrate in obstinate choleraic diarrhœa, to protect the intestinal mucous membrane or as an absorbent. It is given in fine powder and in doses of ℥j–iv per diem.

SINAPIS, Mustard,—is official under the two following titles, but all the pharmacopœial preparations are made from Black Mustard only.

Sinapis Alba, White Mustard,—the seed of *Sinapis Alba*, an annual plant of the nat. ord. Cruciferæ, cultivated in our gardens. It has yellow flowers in racemes, and ribbed pods with a long, ensiform beak. The seeds are about $\frac{1}{12}$ inch in diameter, yellowish, hard, almost globular with a circular hilum; embryo oily, with a curved radicle and two cotyledons, one folded over the other; inodorous, taste pungent and acrid.

White Mustard contains *Myrosin*, a ferment, and *Sinalbin*, a crystalline substance, which reacting on each other in the presence of water produce *Sulpho-cyanate of Acrinyl*, a rubefacient principle allied to the volatile oil of black mustard. It also contains *Sinapine*, an alkaloid, *Erucic* or *Brassic Acid*, and a bland, fixed oil, all three contained also in Black Mustard.

Sinapis Nigra, Black Mustard,—is the seed of *Sinapis nigra*, an annual plant of the nat. ord. Cruciferæ, native of Europe but naturalized in the U. S. It has small, yellow flowers standing closely together on peduncles at the end of the branches, also smooth, erect pods with a short beak. The seeds are about one-half the size of those from white mustard, black and hard, almost globular with a circular hilum; embryo as in Sinapis Alba; inodorous when dry, but when moist of a pungent, irritating odor; taste pungent and acrid.

Black Mustard contains *Myrosin*, a ferment, and *Sinigrin* (Potassium Myronate), which reacting on each other in the presence of water produce the *Sulpho-cyanide of Allyl*, or *Volatile Oil of Mustard*. It also contains *Sinapine*, an alkaloid, *Erucic* or *Brassic Acid*, and a bland, fixed oil; all three of which are contained also in White Mustard.

COMMERCIAL FLOUR OF MUSTARD (Unofficial),—is a mixture of white and black mustard seeds ground to a fine powder. It may be employed in lieu of either variety. Dose, as emetic, ʒij–iv.

Preparations.

Oleum Sinapis Volatile, Sulpho-cyanide of Allyl, C_4H_5NS,—a colorless or pale yellow liquid, of very pungent and acrid odor and taste and neutral reaction, sp. gr. 1.017 to 1.021, almost insoluble in water but freely soluble in alcohol and ether. Dose, ♏ ⅛–¼.

Charta Sinapis, Mustard Paper,—consists of Black Mustard, the fixed oil removed by percolation with Benzin, mixed with Solution of Gutta-Percha and spread on paper. Each square inch should contain about gr. vj of Mustard. For local use.

Linimentum Sinapis Compositum,—has of the Volatile Oil 3, Extract of Mezereum 2, Camphor 6, Castor Oil 15, Alcohol to 100 parts. For local use.

PHYSIOLOGICAL ACTION.

Locally used, Mustard is rubefacient, counter-irritant, and a nervous stimulant, causing heat, redness and severe burning pain. Its prolonged application produces vesication by inducing local inflammation. Internally it is a local emetic in full doses, in smaller a condiment and carminative. Its irritant effect on the gastric mucous membrane is much less powerful than on the skin.

THERAPEUTICS.

Mustard is commonly used as a local application to relieve local pain, to stimulate the viscera, and to produce counter-irritation. These objects find their application in muscular rheumatism, neuralgia, colic, gastralgia, inflammation of the throat, larynx, bronchi, lungs, pleuræ and pericardium, also as a derivative in headache, cerebral congestion, and suppressed menstruation. It may also be used as a stimulant to the heart, vascular system and respiratory apparatus. When action of a mild character is desired it may be diluted with flaxseed or flour.

Internally it may be employed as an emetic in indigestion or narcotic poisoning. Its use as a condiment is familiar, acting by stimulation of the gastric mucous membrane. In overdoses it may excite severe gastritis. White mustard seed, unground, has been used as a laxative, as it produces no irritation.

The Oil is one of the most irritant of the volatile oils, producing severe gastro-enteritis. It is used chiefly as an ingredient of stimulating liniments, but may be employed internally in small doses.

SODIUM, Natrium, Na.,—This metal is not official, but is represented by a number of official salts, which are generally colorless or white and with very few exceptions are readily soluble in water. Some of them are found native, as the Chloride (in sea-water, salt lakes, salt mines), the Nitrate (in Peruvian deserts, etc.) and the Borate (in lakes of Persia, California, etc.). The Carbonate is found in the ashes of marine plants. From the Chloride is prepared the Sulphate, from this the Carbonate, and from the latter most of the other salts are prepared. All sodium salts impart a yellow color to flame, which should not appear more than transiently red when observed through a blue glass, which cuts off the yellow rays but allows the violet ones of Potassium to be seen.

Sodium Compounds and their Preparations.

Soda, Sodium Hydrate, Caustic Soda, NaHO,—a white, hard, opaque solid, deliquescent in moist air, efflorescent in dry air, odorless, of intensely acrid and caustic taste and strongly alkaline reaction, soluble in 1.7 of water at 59° F., and in 0.8 of boiling water, very soluble in alcohol. Is a powerful caustic but milder than Potassa, and should be kept in well-stoppered bottles made of hard glass.

Liquor Sodæ, Solution of Soda,—contains about 5 per cent. of the hydrate, and is prepared by dissolving 180 parts of Sodium Carbonate in 400 of boiling Distilled Water, also 60 of Lime in the same quantity of Distilled Water, boiling, mixing the solutions gradually, again boiling and when cold adding water up to 1000 parts, straining, settling, and then removing the clear solution. Or, by dissolving 56 of Soda in 944 of Distilled Water. It is a clear, colorless liquid, odorless, of acrid and caustic taste and strongly alkaline. Dose, ♏v–ʒss, well diluted with water.

Sodii Acetas, Acetate of Sodium, $NaC_2H_3O_2.3H_2O$,—large, transparent prisms, efflorescent in dry air, odorless, of saline, bitter taste, and a neutral or faintly alkaline reaction, soluble in 3 of water and in 30 of alcohol at 59° F., in 1 of boiling water and in 2 of boiling alcohol. Dose, gr. xx–ʒj.

Sodii Carbonas, Carbonate of Sodium, $Na_2CO_3.10H_2O$,—large, colorless crystals, rapidly efflorescent, with a harsh alkaline taste and strongly alkaline reaction; very soluble in water, insoluble in alcohol. By heat it undergoes aqueous fusion and then dries up, losing 63 per cent. of its weight. Of it 20 grains will neutralize 9.7 grains of Citric Acid, or 10½ grains of Tartaric Acid. Dose, gr. v–xxx.

Sodii Carbonas Exsiccatus, Dried Carbonate of Sodium,—is the Carbonate 200 parts dried at a heat of 113° F., until it is converted into a white powder weighing 100 parts. Is chiefly used for pharmaceutical purposes.

Sodii Bicarbonas, Bicarbonate of Sodium, $NaHCO_3$,—an opaque, white powder, permanent in the air, odorless, of cooling, saline taste, and a slightly alkaline reaction; soluble in 12 of water at 59° F., insoluble in alcohol, decomposed by hot water. It is distinguished from the Carbonate by its solution in cold water giving a white and not a colored precipitate with solution of perchloride of mercury. Of it 20 grains neutralize 16.7 grains of Citric Acid, or 17.8 grains of Tartaric Acid. It is a constituent of Mistura Rhei et Sodæ (see page 336) and of Pulvis Effervescens Compositus (see page 323). Dose, gr. x–ʒj.

Sodii Bicarbonas Venalis, Commercial Bicarbonate of Sodium,—should contain 95 per cent. of pure bicarbonate, which it resembles in appearance and properties. It is employed solely for external applications.

Trochisci Sodii Bicarbonatis,—each troche contains of the Bicarbonate 3 grains, with Sugar, Nutmeg and Mucilage of Tragacanth. Dose, as of the bicarbonate.

Sodii Chloras, Chlorate of Sodium, $NaClO_3$,—colorless, transparent tetrahedrons of the regular system, permanent in dry air, odorless; of cooling, saline taste and neutral reaction, soluble in 1.1 of water and in 40 of alcohol at 59° F., also in 0.5 of boiling water and in 43 of boiling alcohol. When heated it melts and then gives off a portion of its oxygen, leaving a residue of sodium chloride. Should be kept in well-stoppered bottles, and should not be triturated with readily oxidizable or combustible substances. Dose, gr. v–xx.

Sodii Chloridum, Chloride of Sodium, Common Salt, NaCl,—white, hard, cubical crystals or a crystalline powder, permanent in the air, odorless, of a purely saline taste and neutral reaction; soluble in 2.8 of water at 59° F., and in 2.5 of boiling water. Almost insoluble in alcohol. Dose, gr. x–ʒj.

Sodii Nitras, Nitrate of Sodium, Cubic Nitre, Chili Nitre, Chili Saltpetre, $NaNO_3$,—colorless, transparent crystals, slightly deliquescent, odorless, of cooling, saline and bitter taste, and neutral reaction; soluble in 1.3 of water at 59° F., and in 0.6 of boiling water, scarcely soluble in cold alcohol. Dose, ℥j–ij.

Sodii Sulphas, Sulphate of Sodium, Glauber's Salt, $Na_2SO_4.10H_2O$,—large, colorless, transparent, monoclinic prisms, rapidly efflorescent in air; of cooling, saline taste and neutral reaction; soluble in 2.8 of water at 59° F., in 0.25 of water at 91.4° F., and in 0.4 of boiling water, insoluble in alcohol. Dose, gr. v–xx; as purgative ℥ss–j, or a third of a teaspoonful in a large glass of water.

Sodii Ethylas, Ethylate of Sodium, Caustic Alcohol, C_2H_5NaO (Unofficial),—is a white powder, often having a brownish tinge, dissolving in water with a hissing sound. Upon contact with the smallest quantity of water or moist living tissue it splits into alcohol and caustic soda. An alcoholic solution is made by dissolving sodium in absolute alcohol, and is used as a caustic. Chloroform decomposes it at once into ether and chloride of sodium. It should be kept in a cool place as it is liable to explode.

The *Arseniate of Sodium* is described under ARSENIC, page 116;—the *Benzoate* under BENZOIN, page 129;—the *Borate* under AC. BORICUM, page 59;—the *Bromide* under BROMUM, page 133;—the *Solution of Chlorinated Soda* under CHLORUM, page 172;—the *Iodide* under IODUM, page 252;—the *Hypophosphite*, *Phosphate* and *Pyrophosphate* under PHOSPHORUS, page 305;—the *Salicylate* under SALICIN, page 349;—the *Santoninate* and its *Troches* under SANTONICA, page 355;—the *Sulphite*, *Bisulphite* and *Hyposulphite* under ACIDUM SULPHUROSUM, page 73; and the *Sulpho-carbolate* under CARBOLIC ACID, page 61.

PHYSIOLOGICAL ACTION.

[illegible] Sodium salts is similar to that of the Potassium salts, [illegible] former are feebler as alkalies, are not so depressant, and [illegible] to the cardiac muscle or the nerves. They are dif- [illegible], are neither absorbed nor excreted so readily, and have [illegible] diuretic action. Locally applied in large doses to mus- [illegible] nervous tissue they are paralyzant, but not so powerfully as [illegible]. Urate of Sodium is not soluble like the urates of lithium [illegible], being therefore much less readily excreted, and forming [illegible] called "chalk-stones" in gouty subjects. SODA is a less [illegible] escharotic than potash, having less affinity for water. LIQUOR [illegible] renders the blood and secretions more alkaline, but does not alter [illegible] to the extent that liquor potassæ does. The ACETATE is con- [illegible] into the Carbonate in the blood, and is a less active diuretic than [illegible] corresponding potasssium salt. The CARBONATE is chiefly used in [illegible] preparation of the other salts. The BICARBONATE is slightly irritant, stimulates the secretion of gastric juice, acts as an antacid and will increase the alkalinity of the blood. The CHLORIDE is a most important food. It exists normally in the blood, where it keeps the fibrin and albumen in solution, and plays an important part in tissue change. In inflammation, being thus needed, it accumulates at the seat of the morbid action, disappearing from the urine; its reappearance therein being a sign of improvement. A solution of 0.65 part to 100 of water does not destroy animal tissues like water alone, and may be mixed with blood without destroying the corpuscles, though strong solutions are intensely irritating. Internally used in quantity it is emetic and hemostatic. As an enema it is destructive to ascarides.

NITRATE OF SODIUM is a mild cathartic, and in solution is a solvent of false membranes. The SULPHATE is generally cathartic in action, though in small doses and with little water it may be passed off by the kidneys. It is mixed with the Bicarbonate to imitate the salts obtained by evaporation of Carlsbad water. The ETHYLATE is an antiseptic, and a powerful but almost painless caustic.

[The actions of the other Sodium salts are respectively described under the titles of their other constituents, to which their effects are mainly referable.]

Antagonists and Incompatibles.

Poisoning by caustic alkalies is treated by the dilute Vegetable Acids, as vinegar, cider, lemon-juice; then demulcent drinks and oils to protect the mucous membrane, and the usual vital supporters. The alkalies and their carbonates are incompatible with the acids and also with metallic salts, and the caustic alkalies decompose most alkaloids.

THERAPEUTICS.

The Sodium salts treated of in this article are not much used internally, the corresponding Potassium salts being preferred, especially when it is desired to alkalinize the urine or to promote oxidation. In the alkaline

t of stomach affections the Sodium salts are the most efficient,
y the Bicarbonate before meals or on an empty stomach to
the secretion of the gastric juice. This same salt is used in
to lessen the amount of sugar, in frontal headache with constipa-
pain being seated at the junction of the forehead with the hairy
ilso as a wash (gr. ij ad ʒj) in itching skin-affections and as a
ı burns and eczema. The Chloride is used internally as an
in poisoning by Nitrate of Silver and as an emetic, and will
ieve hemoptysis and migraine. In bilious diarrhœa it is employed
of gr. x–ʒj, thrice daily. Locally in baths it is a good stimu-
he skin, and in solution (½ to 1 per cent.) to wash wounds in
water, to cleanse the nasal cavities, or to destroy ascarides, in
se it is given by enema of the strength of two tablespoonfuls to
The Carbonate may be used in dilute solution locally to pre-
hing, but is chiefly employed in the preparation of the other
'he Sulphate is a good purgative, either alone or with the Bicar-
n imitation of Carlsbad Salts, for bilious disorders, gouty affec-
ironic constipation, obesity and diabetes mellitus. The Chlo-
ı similar uses to those of the Potassium Chlorate, but being more
an be used in stronger solutions, but this is of doubtful benefit
nal use as it has all of the irritating power on the kidneys and
ve action on the blood possessed by the other salt. (See *ante*,
.) The Nitrate is employed as a mild cathartic, and in solu-
atomization to destroy the false membrane in croup. The
te has been of service as a caustic in cancer, lupus and nævi, for
er affection being painted over the growth with a glass rod.
Soda is a better caustic than Potassa as it has less affinity for
d hence does not destroy the tissues so deeply, nor has it the
dency to run over adjacent parts.
therapeutics of the other Sodium Compounds are described as
ı page 370.]

ELIA, Pink-root,—is the rhizome and rootlets of *Spigelia*
lica, the Carolina Pink, an herbaceous perennial of the nat. ord.
ceæ, native of the southern states; having large, showy flowers,
r crimson externally, yellow within. The rhizome is 2 inches
inch thick, horizontal, bent and branched; having cup-shaped
ove and numerous thin rootlets below. It contains a bitter prin-
d a volatile oil, also tannin, wax, resin, lignin and salts. Dose,
r an adult, gr. x–xx for a child of 3 years.

Preparations.

tum Spigeliæ Fluidum,—Dose for an adult, ʒj–ij; for a child of 3 years, ♏x–xx.
m Spigeliæ Compositum, Worm Tea (Unofficial),—has of Spigelia 15, Senna
el 10, Manna 30, Water 500. Dose, ℥iss–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Spigelia is anthelmintic against the round worm (Ascaris lumbricoides), and is in popular use as a vermifuge, administered usually with Senna. In large doses it is an uncertain cathartic, and may produce quite serious symptoms, as vertigo, dimness of vision, dilated pupils, spasms and even convulsions. These effects are most apt to occur when the drug fails to produce purgation, hence it is usually administered with an active cathartic.

SPIGELIA ANTHELMIA, the Demarara Pink-root, or Worm-grass, produces vomiting, dilated pupils, dyspnœa, convulsions, and death. If eaten by cattle they perish in great agony. It has been used with real benefit in cardiac affections of rheumatic origin, also in rheumatic fever, and in cardiac palpitation with dyspnœa, due to mitral and aortic disease. A tincture (1 to 8) may be used in doses of ♏ v–xx.

STAPHISAGRIA, Stavesacre,—is the seed of *Delphinium Staphisagria*, an annual or biennial plant of the nat. ord. Ranunculaceæ, a native of Europe, having bluish or purple flowers, in terminal racemes; and seeds in straight, oblong capsules. The seeds contain an alkaloid *Delphinine*, probably 3 other alkaloids, a bitter principle, a volatile and a fixed oil, etc. There are no official preparations.

Preparations.

Unguentum Staphisagriæ (Unofficial),—contains of the powdered seeds 1 part with 2 each of olive oil and lard.

Delphinina, Delphinine, $C_{22}H_{35}NO_6$ (Unofficial),—is the active alkaloid, and exists in the fatty oil which is extracted by ether. Dose, gr. $\frac{1}{12}$–$\frac{1}{4}$.

PHYSIOLOGICAL ACTIONS.

Stavesacre is a violent emetic and cathartic, also parasiticide. The alkaloid is irritant to the skin if locally used, producing tingling, burning, and inflammation. Internally, it lowers the activity of the heart and respiration and produces a most profound adynamia, and may prove fatal from paralysis of the spinal cord and asphyxia. In many respects its alkaloid resembles Aconitine and Veratrine.

THERAPEUTICS.

The ointment is often employed as a parasiticide against pediculi and the acarus scabies. The fixed oil is probably equally effective. Delphinine has been used internally in asthma, rheumatism and neuralgia, and in the latter affection is well employed as an ointment (gr. xx to ℥j), applied over the course of painful superficial nerves. It has been suggested as an antipyretic and for dropsy. A tincture or fluid extract is a very efficient application against pediculi.

STILLINGIA, Queen's Root,—is the root of *Stillingia sylvatica*, or Queen's Delight, an indigenous, perennial plant of the nat. ord. Euphorbiaceæ, with yellow flowers on a spike, and a large, thick and woody root, of peculiar and unpleasant odor, and an acrid, pungent, bitter taste. It contains a resin and a volatile oil, but its active principle has not yet been isolated. The fresh root should be used in making the preparations, as those from the dried root are almost inactive. Dose of the powdered root, gr. x–ʒj.

Preparations.

Extractum Stillingiæ Fluidum,—Dose, ♏x–ʒj.

Tinctura Stillingiæ (Unofficial),—Dose, ʒss–j.

Decoctum Stillingiæ, (Unofficial),—℥j ad Oj. Dose, ℥j–ij.

Syrupus Stillingiæ Compositus (Unofficial),—is composed of Stillingia, Corydalis, Iris, Chimaphila, Coriander, Xanthoxylum, Sambucus, Sugar, Water and Alcohol. For the formula, see U. S. Disp., page 1363.

PHYSIOLOGICAL ACTION.

Stillingia in large doses is emetic and cathartic, in smaller doses it is expectorant, diaphoretic, diuretic, sialagogue and cholagogue, possessing the various properties which are considered "alterative." Its taste is acrid and pungent, and it increases the action of the heart, skin, kidneys, and bronchial mucous membrane; and the gastric, hepatic, intestinal and salivary secretions. Full doses often excite epigastric pain, nausea and vomiting.

THERAPEUTICS.

Stillingia is much employed with Sarsaparilla and similar acting drugs as an alterative in syphilitic affections, particularly in chronic cases of the tertiary form, in which the system is greatly reduced by the abuse of mercurials and iodides. In these cases it possesses considerable power and frequently cures. It is also valuable in strumous affections, in ascites due to hepatic changes, portal congestions with jaundice following malaria, habitual constipation, hemorrhoids from hepatic obstruction, and intermittents. In the latter affection the fluid extract with Quinine or Arsenic is a very useful combination. A strong decoction is used to ward off an impending paroxysm of ague.

STRAMONIUM, Thornapple.—The plant *Datura Stramonium*, Jamestown Weed or Thornapple (nat. ord. Solanaceæ), is official in two forms, the leaves and the seed. It is an annual, of rank and vigorous growth, having a green stem with large white flowers, and numerous seeds in a large, fleshy, four-celled capsule, open at the summit. It grows wild in Southern Russia and the middle United States, and contains an alkaloid, *Daturine*, which is generally considered identical with Atropine both physiologically and chemically,—also malic acid, albumen, gum, resin, etc.

Stramonii Folia,—the leaves of *Datura Stramonium*, are about 6 inches long, smooth, petiolate, ovate, pointed, unequal at the base, coarsely toothed, of bitter and nauseous taste. Dose, gr. ij–xx.

Stramonii Semen,—the seed of *Datura Stramonium*, is about ⅙ inch long, reniform, flattened, pitted and wrinkled, the testa blackish and hard, enclosing a curved embryo embedded in a whitish, oily albumen; of unpleasant odor when bruised and an oily, bitter taste. Dose, gr. j. The official preparations are all made from the seed.

Preparations.

Extractum Stramonii,—Dose, gr. ⅙–½.
Extractum Stramonii Fluidum,—Dose, ♏ j–v.
Tinctura Stramonii,—10 per cent. Dose, ♏ v–xxx.
Unguentum Stramonii,—has of the Extract 10, Water 5, Benzoinated Lard 85 parts.
Daturina, Daturine, $C_{17}H_{23}NO_3$ (Unofficial),—is the alkaloid found in all parts of the plant, also in Datura Tatula. It is a Tropate of Tropin, isomeric and identical with Atropine. Dose, gr. $\frac{1}{120}$–$\frac{1}{20}$.

PHYSIOLOGICAL ACTION.

The action of Stramonium is similar to that of Belladonna in almost every particular, except that Stramonium is more powerful and chiefly influences the sympathetic nervous system, not affecting the motor or sensory nerves. It excites a greater degree of cardiac irregularity and a more furious delirium, and seems to have a special affinity for the generative apparatus, being decidedly aphrodisiac in full doses. [Compare Belladonna, *ante*, page 126.]

As previously stated the alkaloids Atropine, Daturine, Hyoscyamine, and Duboisine are chemically alike and almost identical physiologically. They all produce dilatation of the pupil, increase the cardiac action, the pulse and respiration rate, and cause delirium. Poisoning by one of them is indistinguishable from that by another.

Antagonists and Incompatibles.

These are the same as for Belladonna. Poisoning by Stramonium is not uncommon as children may eat the seeds, which should be evacuated by an emetic. If physiological symptoms follow *Opium* must be exhibited as the antagonist, but cautiously, lest opium-narcosis be substituted.

THERAPEUTICS.

Stramonium is chiefly used as an antispasmodic and to relieve pain. In asthma the leaves are smoked with advantage at the commencement of a paroxysm, the smoke being drawn into the lungs. In other spasmodic affections, as hepatic colic, laryngeal cough, chorea and stammering it is very beneficial. In dysmenorrhœa and neuralgia it is used in combination with Opium and Hyoscyamus, and in tic douloureux and sciatica it is often very efficient. In nymphomania with great mental depression it is often very effective, and in mania of furious character, particularly the puerperal form with suicidal tendency, it is highly serviceable in 10-

minim doses of the tincture every 3 or 4 hours. The ointment is much used in irritable ulcers, and as an anodyne application in painful hemorrhoids and certain cutaneous diseases.

STROPHANTHUS,—is the seed of *Strophanthus hispidus*, an African climbing plant (nat. ord. Apocynaceæ), from which the natives extract a toxic preparation known as the Kombé arrow-poison. It contains a crystalline glucoside, named *Strophanthin*, the active principle, which is bitter, slightly acid, soluble in water and in alcohol, but almost insoluble in ether, chloroform, benzin, etc. It is very plentiful in the seeds (8 to 10 per cent.), and is an agent of great energy, the frog being killed by a solution of 1 in 10,000,000. (Denian.)

Preparations.

Professor Frazer recommends the tincture.

Tinctura Strophanthi (1 in 20),—Dose, ♏v–x, or ♏½–ij frequently repeated. A stronger tincture (1 in 8) is on the market.

Strophanthinum, Strophanthin,—Dose, gr. $\frac{1}{120}$–$\frac{1}{60}$ hypodermically. gr. $\frac{1}{50}$ has been used, the influence of the one injection upon the circulation lasting at least 8 days.

PHYSIOLOGICAL ACTION.

Strophanthus acts primarily upon muscular tissue, by direct contact through the blood, and with great energy. It increases the contractile power of all striped muscle, and in poisonous quantity it fixes the muscular contraction into a condition of tetanic permanence, the muscle being unable to resume its normal condition of partial flexibility. As the heart receives much more blood in a given time than any other muscle in the body, it is quickly and markedly affected by the strophanthus-charged fluid, and by regulating the dosage, the cardiac muscle may alone be affected, by a quantity which would not influence the other muscles.

Small doses stimulate the cardiac contractions, increasing the force of the ventricular systole, and lowering the rate of the heart-beats. At the same time the general blood-pressure is raised, and diuresis produced, both being due to the *vis a tergo*,—the direct stimulation of the circulation from behind. Large doses paralyze the heart in systole, and leave the cardiac muscle in a state of contraction resembling cadaveric rigidity. It does not act through the nervous system, but paralyzes muscular tissue, striated and non-striated, by direct contact;—and when contractility has been once destroyed thereby, no stimulus will re-excite it. It does not affect the vascular system directly.

Compared with Digitalis, then, we have in Strophanthus a much more powerful cardiac stimulant, differing from Digitalis in not producing any vaso-motor constriction of the arterioles. It reduces the pulse, lowers body-temperature somewhat, is not cumulative in action, and does not cause any gastro-intestinal disturbance. It is diuretic, by direct stimulation of the renal circulation; and has power over rigors, by its rapid cardiac action, stopping them, and preventing their recurrence.

THERAPEUTICS.

Strophanthus is the most valuable of the cardiac stimulants, from the rapidity and permanence of its action, as well as its non-interference with the calibre of the peripheral vessels. It relieves cardiac dyspnœa in a few minutes, in less than an hour it modifies the pulse-rate, and the influence of a single dose upon the circulation persists for a very long time. It is certain to replace Digitalis in the treatment of chronic Bright's disease and valvular lesions of the heart, where it is important that the work of the heart should not be increased by any additional resistance in the arterial system.

Strophanthus has been exceedingly useful in the treatment of Bright's disease, for the dyspnœa, orthophœa, dropsy and uræmia; also in mitral insufficiency, with great anasarca and dyspnœa; in palpitation, exaggerated cardiac action, and in weak heart, and for exophthalmos, with tumultuous action of the heart; also pulmonary œdema, due to valvular lesions, or to pneumonia. It is useful in endocarditis, also in atheroma of the arteries; in reflex palpitation of neurasthenia, hysteria and chlorosis, and for rigors due to catheterization, or operations on the urethra.

STYRAX, Storax,—is a balsam prepared from the inner bark of *Liquidambar orientalis*, the Oriental Sweet-gum, a tree of the nat. ord. Hamamelaceæ, growing in Asia Minor. It is semi-liquid, sticky, opaque and gray-colored, of agreeable odor and balsamic taste, completely soluble (except accidental impurities) in an equal weight of warm alcohol. It consists of a volatile oil named *Styrol*, C_8H_8,—a crystalline solid *Styracin*, which is a cinnamate of cinnamic ether,—two peculiar resins, one hard, the other soft,—and *Cinnamic Acid*, $C_9H_8O_2$, a colorless, odorless, crystalline body, closely allied to Benzoic Acid, excreted in the urine partly as Hippuric Acid, and occurs also in the Balsams of Peru and Tolu. Dose of Storax, gr. v–xx.

Preparation.

Tinctura Benzoini Composita, Friar's Balsam,—contains 8 per cent. of Storax. (See *ante*, page 129.) Dose, ʒss–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Storax is a stimulant expectorant, an antiseptic and a disinfectant acting both locally and remotely, like Benzoin and the Balsams of Tolu and Peru. It is used with benefit in chronic bronchitis and other affec-

of the respiratory organs, also in chronic catarrhs of the genito-
y passages, in gonorrhœa and in amenorrhœa. Externally it is
yed in ointment as a detergent for foul ulcers, and as a parasiticide
bies and phthiriasis.

CCINUM, Amber,—the source of the official Oil of Amber, is
resin, occurring in alluvial deposits, chiefly in Prussia, Bohemia
urland. It is usually associated with lignite, sometimes encloses
and parts of vegetables, and consists of a volatile oil, a yellow
another resin, succinic acid and a bituminous principle. Its
is thought to be an extinct coniferous tree, the *Pinites succinifer*,
h amber represents the exudation.

Preparation.

Succini, Oil of Amber,—is a volatile oil obtained by the destructive distillation
er, and purified by subsequent rectification;—a colorless or pale yellow, thin
sp. gr. about 0.920, of empyreumatic and balsamic odor, a warm, acrid taste,
utral or faintly acid reaction, and readily soluble in alcohol. Dose, gtt. v–x.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

of Amber is stimulant, antispasmodic and diuretic, when used
lly. Externally it is irritant and rubefacient. It has been em-
with benefit in epilepsy, hysteria, convulsions, amenorrhœa,
ng-cough, etc. As a liniment it is often used in chronic rheuma-
nd has been applied along the spine in infantile convulsions, mixed
equal part of laudanum and diluted with olive oil or brandy.

LPHUR, and SULPHIDES.—The non-metallic element Sul-
, is a brittle solid of a pale yellow color, permanent in the air, of
ine texture and susceptible of several allotropic states, which are
most part induced by heat. It is obtained native in several vol-
istricts, or from the native Sulphides of Iron and Copper (iron
pper pyrites) by roasting, as it sublimes at about 238° F. It is
in three forms, viz.:

hur Sublimatum, Sublimed Sulphur, S,—is prepared from
ulphur by sublimation and condensation. It is a fine citron-yel-
wder, of faintly acid taste and acid reaction, insoluble in water or
. Ignited it burns with a blue flame, forming sulphurous acid gas,
ving no residue or only a trace. Dose, gr. x–xx–lx.

phur Lotum, Washed Sulphur, S,—prepared by digesting sub-
Sulphur with dilute Water of Ammonia, thoroughly washing with
nd passing through a No. 30 sieve. In this process the Ammonia
es out any Sulphide of Arsenic which may be present and neutral-

izes any Sulphurous or Sulphuric Acid. [For solubility and dose see
PRÆCIPITATUM, below.]

Sulphur Præcipitatum, Precipitated Sulphur, Lac Sulphuris, M
of Sulphur, S,—prepared by boiling sublimed Sulphur with slaked li
and water, thus forming the Sulphide and Hyposulphite of Calciu
These are then decomposed by HCl, and Sulphur is precipitated as a v
fine powder which is next washed until the washings are tasteless, an
is dried with a gentle heat. The result is a very fine, yellowish-wh
amorphous powder, odorless and almost tasteless, insoluble in water
alcohol, but completely soluble in disulphide of carbon or a boiling s
tion of soda. By heat it is completely volatilized. Dose, gr. x–ʒj.

Preparations of Sulphur.

Unguentum Sulphuris,—has of Sublimed Sulphur 30, Benzoinated Lard 70 p
rubbed together.

Unguentum Sulphuris Alkalinum,—has of Washed Sulphur 20, Potassium Carbo
10, Water 5, Benzoinated Lard 65 parts. thoroughly rubbed together.

Pulvis Glycyrrhizæ Compositus (see *ante*, page 228) contains 8 per cent. of Sul
Lotum; and *Emplastrum Ammoniaci cum Hydrargyro* (see *ante*, page 93) contai
per 1000 of Sulphur Sublimatum.

Sulphuric Acid is described under *Acidum Sulphuricum*, *ante*, page 72; *Sulphu*
Acid and the *Sulphites* under *Acidum Sulphurosum*, *ante*, page 73. The *Sulphate*
noted under the titles of their respective bases.

Ichthyol,—is a preparation obtained from a bitumen found in the Tyrol, and regard
the residue of extinct fishes. It contains Sulphur in the proportion of about 10 per c
is soluble in a mixture of Ether and Alcohol, mixes with vaseline, oils and lard, an
non-irritant to the skin. For local use, in a 10 to 20 per cent. ointment.

Sulphides and their Preparations.

Calcii Sulphidum, Sulphide of Calcium, CaS (Unofficial),—is the preparation na
"*Hepar Sulphuris,* Liver of Sulphur," by the homœopathists, who prepare it by mi
equal parts of powdered oyster-shell and sublimed sulphur, and heating at a white
in a crucible hermetically sealed. It is a constituent of the following official compo
viz.:

Calx Sulphurata, Sulphurated Lime,—is commonly misnamed Sulphide of Calc
It is a mixture of Calcium Sulphide and Calcium Sulphate, $CaS+CaSO_4$, in varying
portions, but containing not less than 36 per cent. of the former, and is prepared by h
ing together in a closed crucible Powdered Lime 100 parts and Precipitated Sulphu
parts, at a low red heat for one hour. The result, rubbed to powder, is grayish-whit
offensive taste and alkaline reaction, very slightly soluble in water, insoluble in alco
Dose, gr. $\frac{1}{10}$–$\frac{1}{2}$.

Potassa Sulphurata, Sulphurated Potassa,—formerly called Hepar Sulphuris,—
mixture of Potassium Trisulphide with small quantities of Potassium Hyposulphite
Sulphate, formed by heating together 1 part of Sublimed Sulphur with 2 of Potass
Carbonate, until melted. Of a liver-brown color gradually changing with age to green
or brownish-yellow, of disagreeable odor, alkaline and repulsive taste and alkaline react
Soluble in 2 of water, excepting a small residue, partly soluble in alcohol. Dose,
ij–x, in pill or solution.

Sulphuris Iodidum, Iodide of Sulphur, Iodine Disulphide, I_2S_2,—is prepared by fus
together Washed Sulphur 1 part, and Iodine 4. It is a grayish-black crystalline solid, hav
the odor of iodine, an acrid taste and a faintly acid reaction, insoluble in water, but
soluble in disulphide of carbon and in about 60 of glcerin. Alcohol and ether disso
out the iodine, leaving the sulphur. Only used as ointment, gr. xxx to the ℥.

Hydrogen Sulphide, Sulphuretted Hydrogen, H_2S (Unofficial),—is used only a
test. It is a colorless gas having the smell of rotten eggs, prepared by the action of dil
Sulphuric Acid on Sulphide of Iron, the gas being passed into water a solution is obtain
It precipitates most of the metals from acid solutions as sulphides, that with Arse

being yellow; with Antimony, orange; with Cadmium, yellow; with Copper, Lead, Mercury and Silver, black; with Bismuth, brown; with Gold and Platinum, brownish-black.

Bisulphide of Carbon is described under *Carbo, ante*, page 154; *Sulphide of Antimony* and *Sulphurated Antimony* under *Antimonium, ante*, page 102.

PHYSIOLOGICAL ACTION.

SULPHUR is a mild laxative and a diaphoretic. In contact with living protoplasm it enters into combination and produces either sulphuretted hydrogen or sulphurous acid; taken into the intestinal canal a large portion passes out unchanged, some of it being converted by the alkaline bile into sulphuretted hydrogen and sulphides. The former is excreted by the lungs, giving to the breath the smell of rotten eggs, and by the skin, discoloring silver articles carried about the person by forming a sulphide of silver. The SULPHIDES are partly absorbed into the blood, and are excreted in the urine, chiefly as sulphates, and in the fæces which they blacken and render soft. Given in full doses they are irritant to the stomach and intestines, extremely nauseous to the taste and smell, increase the secretions of the intestinal glands, and peristaltic action, and if used for any length of time they impair the blood, causing anæmia, emaciation, tremor and great debility.

SULPHURETTED HYDROGEN is very destructive to plant life, and in animals it destroys the tissue functions, decomposing the blood and paralyzing the nervous and the muscular systems. The symptoms of poisoning are those of asphyxia; muscular tremors occur and are followed by convulsions and death. This gas is often found in cesspools in large quantities, but in one case poisoning occurred from its excessive formation in the intestines and subsequent absorption into the blood.

CALX SULPHURATA and POTASSA SULPHURATA act like the sulphides as local irritants and in large doses as irritant poisons, producing narcotic symptoms and convulsions. In small doses they act like sulphur and are supposed by many observers to have a peculiar influence on suppuration to limit or prevent it if given in small doses frequently repeated.

The IODIDE is believed to possess some of the properties of both its elements. It is doubtful whether it is a distinct chemical compound or merely a physical mixture. As a parasiticide it is very efficient, and has been found remarkably alterative in many local affections of chronic character, but may prove very irritant to the skin if improperly prepared.

[The actions of Sulphuric Acid, Sulphurous Acid and the Sulphites are respectively described on pages 72 and 73, *ante*.]

Antagonists and Incompatibles.

Solutions of the Sulphides are decomposed by the mineral acids and by solutions of metallic salts. Antidotes are Chlorine-water, Chlorides of Sodium and Potassium, Sulphate of Iron, etc. Poisoning by Sulphuretted Hydrogen is best treated by artificial respiration.

THERAPEUTICS.

SULPHUR is chiefly used as a laxative when pultaceous rather than liquid stools are required, as in hemorrhoids, anal fissure, or constipation. Scabies has long been treated by its local and internal use, but sulphur alone does not kill the itch insect. The older sulphur ointments were made with sublimed sulphur, and probably contained a considerable amount of sulphurous acid on which their parasiticide property depended. The recent ointments, made with purified sulphur, all contain an alkaline ingredient and develop sulphides which are powerful insect poisons. Sulphur fumigations are practically applications of volatile sulphurous acid, while most of the sulphur baths and mineral waters are solutions of sulphuretted hydrogen or of the alkaline sulphides. They are of value in lead poisoning to favor the elimination of that metal, in chronic constipation, chronic rheumatism and sciatica, and many skin diseases, especially chronic psoriasis, eczema, pityriasis and prurigo. The Ointment and the Alkaline Ointment are both used in scabies.

The IODIDE has been used internally in scrofula, glanders and cutaneous disorders, but it is chiefly employed as an ointment in lupus and parasitic skin diseases, especially herpes circinatus.

CALX SULPHURATA is extremely efficient as an internal remedy in crops of boils, scrofulous sores, glandular enlargements, acne, etc., and will prevent or limit suppuration. For these purposes it must be used in small doses (gr. $\frac{1}{10}$) frequently repeated.

POTASSA SULPHURATA is only used externally as baths or ointment in skin diseases and mucous discharges, also in chronic rheumatism.

ICHTHYOL has been introduced by Dr. Unna, of Hamburg, the celebrated dermatologist, as a promptly efficient remedy in certain chronic skin diseases, particularly eczema and psoriasis. It mixes with vaseline, lard and oils, is soluble in a mixture of ether and alcohol, and is not irritant locally, even if covered with oiled silk.

In one case of eczema infantile, an ointment was applied containing 1 part of Ichthyol to 5 of Vaseline, resulting in the child's sinking into a stupor which lasted for 12 hours. Though recovery was complete, the result of the application shows that care must be used in the employment of the remedy, as it is not devoid of danger (Sinclair).

SUMBUL,—is the root of *Ferula Sumbul*, a very large plant of the nat. ord. Umbelliferæ, which grows to the height of 8 feet in the mountains of northern Asia. The root occurs in transverse segments of a strong and musk-like odor and a bitter, balsamic taste, and contains *Angelic Acid*, $C_5H_8O_2$, *Valerianic Acid*, $C_5H_{10}O_2$, also a volatile oil, two balsamic resins, a bitter substance, etc. Dose, gr. xxx–ʒj or more in infusion, decoction, etc.

Preparation.

Tinctura Sumbul, 10 per cent. Dose, ʒj–iv.

Physiological Action and Therapeutics.

Sumbul is an efficient nerve tonic, having qualities closely resembling musk and valerian. It is used by the Russian physicians in very many morbid conditions, and seems to be a favorite remedy in that country for almost any disease. It is probably of some value in hysteria and other nervous derangements in delicate females, and may be used as a substitute for musk in typhoid conditions and fevers, asthma, delirium tremens and perhaps in epilepsy.

TABACUM, Tobacco,—the commercial, dried leaves of *Nicotiana Tabacum*, an annual plant of the nat. ord. Solanaceæ, native of tropical America, but cultivated in several parts of the world, especially in Cuba and Virginia. The leaves are large, as long as 20 inches, mottled-brown, ovate or lanceolate, glandular-hairy; having a heavy, peculiar odor, and a nauseous, bitter and acrid taste. It contains a very powerful and poisonous fluid alkaloid named *Nicotine*, $C_{10}H_{14}N_2$, also a concrete, camphoraceous, volatile oil, *Nicotianin*, besides alkaline salts (nitrates, phosphates), and other less important substances. Its combustion gives rise to several empyreumatic products, of which *Pyridine*, C_5H_5N, and its compounds are the chief, having somewhat the same action as Nicotine, but of less severity. Besides these products, tobacco-smoke contains Creasote, Hydrocyanic and Hydrosulphurous acids, etc., but little or no Nicotine.

Unofficial Preparations.

Enema Tabaci,—gr. xx infused in ℥ viij Boiling Water, and administered as one enema.

Vinum Tabaci,—℥j to the pint. Dose, ♏v–ʒj.

Oleum Tabaci,—is an empyreumatic product, obtained by distillation at a temperature above that of boiling water, and a most virulent poison.

Nicotina, Nicotine, $C_{10}H_{14}N_2$,—the alkaloid and active principle; a colorless, oily-looking fluid, having the odor of tobacco and an acrid taste; readily soluble in water, and forming soluble salts with acids. Dose, ♏$\frac{1}{20}$–$\frac{1}{10}$ in strychnine-poisoning, up to ♏ij in 2 hours.

[Other Liquid Alkaloids besides Nicotine are—Coniine, Muscarine, Sparteine, Lobeline, Lupuline, and Pyridine.]

Physiological Action.

Tobacco is a very depressant nauseant, an emetic by irritant as well as systemic action, and an antispasmodic; also sternutatory, diuretic, diaphoretic, cathartic, sedative and narcotic. It paralyzes the motor nervous system, its action commencing at the periphery and extending to the spinal cord. It increases the salivary and intestinal secretions, and produces diuresis, tremor, clonic spasms and a tetanic stage followed by paresis. It contracts the pupils, depresses the heart, lowers arterial tension, reduces body-temperature, and causes profuse sweating, cold and clammy skin, collapse and death usually by paralysis of respiration, sometimes by paralysis of the heart. It does not impair the muscular irritability, nor does it act upon the cerebrum directly. Its empyreumatic products act similarly but less powerfully. Fatal results have followed on the inhalation of its vapor into the lungs.

NICOTINE is almost as rapidly fatal as Prussic Acid, death having occurred from a toxic dose in three minutes, with no symptoms except a wild stare and a deep sigh.

The continued use of Tobacco in excess by smoking or chewing produces granular inflammation of the fauces and pharynx, atrophy of the retina, dyspepsia, lowered sexual power, nervous depression, and occasionally angina pectoris. Used by the young it hinders the development of the higher nerve centres, and impairs the body nutrition by interfering with the processes of digestion and assimilation.

Strychnine is the true physiological antagonist to Nicotine (or Tobacco) and *vice versa*. Alcohol, Ammonia, Ergot, Digitalis, Belladonna, etc., antagonize its action on the circulation. In poisoning by Tobacco the means resorted to are evacuation of the stomach, Tannin, Iodides, and artificial respiration. A curious synergism has been observed by the author between Opium and Tobacco. If a person, habituated to the use of the latter, either by smoking or chewing, begins to use Morphine, the smallest quantity of Tobacco will make him sick, the symptoms being those experienced by a novice in its use.

THERAPEUTICS.

Tobacco is now but little used in medicine; the dangers attending its employment either internally or externally have caused it to be superseded by less violently acting agents. The chief indications for its use are to relax spasm and to relieve local pain. It may be employed with advantage in habitual constipation, for the dyspnœa of spasmodic asthma and emphysema, and in nymphomania and chordee. Intestinal affections like impaction of the cæcum, intussusception and strangulated hernia may be overcome by a tobacco-enema to relax spasm, but it is a dangerous expedient. In dropsy, especially the renal form, it makes a very efficient diuretic. In tetanus there is no more effective remedy than minim-doses of the alkaloid every two hours by the stomach, or ♏ij by the rectum, or better still the wine in 10-minium doses repeated for effect. Strychnine-poisoning is best met by minute doses of Nicotine (gr. $\frac{1}{24}$) hypodermically, as a physiological antagonist.

The use of Tobacco in moderation, when under excessive exertion, aids in supporting the system and lessening the sense of fatigue. Smokers rarely suffer from constipation, but generally experience an immediate laxative result from their morning cigar.

TAMARINDUS, Tamarind,—is the preserved pulp of the fruit of *Tamarindus indica*, a large tree of the nat. ord. Leguminosæ, native in the East and West Indies. It occurs as a reddish-brown, sweet-acid and

, containing strong, branching fibres and brown, quadrangular
enclosed in a tough membrane. It contains citric, tartaric
acids, sugar, gum, potassium bitartrate, etc.

Preparation.

Sennæ (see *ante*, page 364),—contains Tamarind to the amount of 10 per
ʒj–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

d is a laxative and refrigerant fruit. In infusion it may be
nvalescents as a pleasant acidulous drink, or the pulp may be
milk as a whey for the same purpose. As a laxative it is
escribed in connection with other agents having the same

CETUM, Tansy,—the leaves and tops of *Tanacetum vul-*
rennial, herbaceous plant of the nat. ord. Compositæ, having
ers in dense terminal corymbs, indigenous in Europe, but
in our gardens, and growing wild in roads and old fields. It
volatile oil, a bitter principle named *Tanacetin*, a tannic acid,
e are no official preparations, but a fluid extract may be pre-
rding to the general rule and administered in doses of ♏x–ʒj.
f the volatile oil (Oleum Tanaceti) is 1 to 3 drops. An infu-
y Tea) may be made in the proportion of ℥j to the pint, and
ses of ℥j–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

emmenagogue, diuretic and anthelmintic, an aromatic bitter
itant narcotic. Fatal results have frequently followed upon
of the oil (℥ss–j), or strong decoctions, preceded by clonic
sturbed respiration and cessation of the heart's action. It is a
edy in amenorrhœa, but is in popular repute as an abortifacient,
ich it does not possess except in quantity dangerous to life.

XACUM, Dandelion,—is the root, gathered in autumn, of
n Dens-leonis, an herbaceous plant of the nat. ord. Compositæ,
nnial fusiform root, long, sinuate-toothed or runcinate leaves,
r peduncles, each bearing a single head of yellow flowers. All
e plant contain a bitter, milky juice, exuding from any break
Its constituents are a bitter amorphous principle named
, a crystalline principle *Taraxacerin*, with potassium and cal-
inulin, and resinoid bodies, etc. The French name for the
Pissenlit."

Preparations.

Extractum Taraxaci,—Dose, gr. v–xxx.
Extractum Taraxaci Fluidum,—Dose, ʒj–℥j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Taraxacum is a bitter tonic, a diuretic and an aperient. It has been supposed to act especially on the liver, and is chiefly used in dyspepsia with hepatic torpor. As found in the shops it is usually inert. The extract is probably only of value as an excipient for pills.

TEREBINTHINA, Turpentine,—means a vegetable exudation, liquid or concrete, which consists of resin combined with a peculiar essential oil named *Oil of Turpentine* ($C_{10}H_{16}$), and generally procured from various species of the nat. ord. Coniferæ (cone-bearers). Of the many turpentines two only are official, viz.:—

Terebinthina, Turpentine,—a concrete oleoresin obtained from *Pinus australis*, the Yellow Pine, and from other species of *Pinus*, nat. ord. Coniferæ. Occurs in tough, yellowish masses, brittle when cold, crummy-crystalline interiorly, of terebinthinate odor and taste. Dose, gr. v–xxx as a stimulant, antispasmodic or diuretic; ʒij–iv as an anthelmintic.

Terebinthina Canadensis, Canada Turpentine, Balsam of Fir,—a liquid oleoresin obtained from *Abies balsamea*, the Silver Fir, or Balm of Gilead, a tree of the nat. ord. Coniferæ. A yellowish, transparent, viscid liquid, of agreeable, terebinthinate odor, and a bitterish and slightly acrid taste, slowly drying on exposure, forming a transparent mass; completely soluble in ether, chloroform or benzol. Dose, gr. x–xxx.

[For PITCH and its preparations, see *ante*, page 315.]

Preparations.

Oleum Terebinthinæ, Oil of Turpentine, Spirits of Turpentine,—is a volatile oil distilled from Turpentine, any variety furnishing it. Dose, as a stimulant or diuretic, ♏v–xv, in emulsion, 3 to 6 times daily;—as a cathartic or anthelmintic ℥ss or more, combined with other cathartics. A little glycerin and oil of gaultheria will disguise the taste.

A thin, colorless liquid, of characteristic odor and taste, having the sp. gr. 0.855 to 0.870, soluble in 6 of alcohol, mixes with other volatile and fixed oils, and dissolves resins, wax, sulphur, phosphorus and iodine. Bromine and powdered Iodine act violently on it, and when brought into contact with a mixture of Nitric and Sulphuric Acids it takes fire. It is isomeric with a number of volatile oils, has the formula $C_{10}H_{16}$—but constantly absorbs oxygen from the air when exposed, becoming thicker and less active, from formation of resin. It is a mixture of several hydrocarbons, each having the same formula as itself, viz.:—$C_{10}H_{16}$.

Linimentum Terebinthinæ, Turpentine Liniment,—has 35 parts of the oil with 65 of Resin Cerate.

Linimentum Cantharidis, contains the oil in the proportion of 85 per cent., the other 15 being Cantharides; making a very powerful and unmanageable application unless closely watched. See *ante*, page 151.

Unofficial Turpentines.

Chian Turpentine,—from the *Pistaceæ Terebinthus*, a small larch tree growing in the islands of Chio and Cyprus; a thick, tenacious, greenish-yellow liquid, concreting on exposure to the air into a translucent solid. Dose, gr. iij–v in emulsion.

ice Turpentine,—procured in Switzerland from the *Larix Europæa* or European
;—a viscid liquid of the consistence of honey, does not concrete on exposure, and
rely soluble in alcohol. The Venice Turpentine of commerce is usually prepared
solving Resin in Oil of Turpentine.

us Americanum, Common Frankincense, (B. P.),—the concrete turpentine which
aped off the trunks of *Pinus australis* and *Pinus Tæda*, Southern States of N.
ica. An ingredient of the Emplastrum Picis of the B. P.

Analogues of Turpentine.

EUM SUCCINI, Oil of Amber,—a volatile oil obtained by the
uctive distillation of Amber (Succinum), a fossil resin, occurring in
ial deposits in Bohemia, etc., and thought to be the exudation of
es succinifer, an extinct coniferous tree. Dose, gtt. v–x. See *ante*,
377.

EUM THUJÆ,—a volatile oil, which is given in doses of ♏j–v. A
ated tincture may be used in drachm-doses. Obtained from *Thuja*
entalis, the Arbor Vitæ, a coniferous tree. See *infra*, page 388.

Derivatives of Turpentine.

ESINA, Resin, Colophony,—is the residue left after distilling off the
ile oil from turpentine; the portion of turpentine which is fixed by
ation; consisting in greater part of *Abietic anhydride* ($C_{44}H_{62}O_4$).
ante, page 334.

EREBENE, $C_{10}H_{16}$,—is a hydrocarbon obtained by the oxidation of oil
urpentine by means of sulphuric acid. A colorless liquid, of hot
, soluble in alcohol. Dose, ♏v–xx on sugar, or suspended in ℥ss of
r by the aid of gr. xx of light carbonate of magnesium.

EREBINTHENE, $C_{10}H_{16}$,—another isomeric hydrocarbon, obtained by
lling oil of turpentine with an alkali. This by hydration, is con-
d into *Terpine*, commonly called "*Hydrate of Terpine*," instead of
rate of Terebinthene, a solid, crystalline body, soluble in glycerin.
ng on this by an acid, we get an oily body, named *Terpinol*, the dose
hich is gr. ij–v, while that of Terpine is gr. v–x. None of these
es are soluble in water, but all are in alcohol.

NITAS,—is a disinfecting solution obtained by the action of water
oxidized turpentine, its active principle being *Peroxide of Hydrogen*.
not poisonous, and does not stain the linen,—two qualities which
gly recommend it.

Physiological Action.

URPENTINES are stimulant, diuretic, anthelmintic, and hemostatic;
arge doses laxative and irritant, and externally used are rubefacient
antiseptic. Their virtues depend entirely on the volatile oil.

IL OF TURPENTINE in small doses causes a sense of heat at the epigas-
m, burning in the mouth, and by reflex action salivation. In mode-

rate doses it at first stimulates the vaso-motor nervous system, afterwards paralyzing these centres, thus causing a rise and then a fall of the arterial tension. It lowers the functions of the brain, spinal cord and medulla in the order stated, causing diminution of voluntary movement and reflex action, dilatation of the vessels, lowered blood-pressure, and slowed respiration, the latter often becoming spasmodic. The pulse is sometimes slowed, sometimes quickened. Large doses produce gastro-enteritis, with vomiting and diarrhœa, suppression of urine, pain in the lumbar regions, burning in the urethra, hematuria, and strangury. The muscular power is diminished, coördination impaired, and a state of intoxication induced. Toxic doses cause complete muscular relaxation, profound insensibility, with abolished reflexes, dilated pupils, cyanosed face, labored and stertorous breathing and death by paralysis of respiration. It is excreted by the various organs of excretion, all of which are highly irritated, the kidneys suffering particularly. Its vapor inhaled produces nasal and renal irritation, frontal headache, and frequently strangury and hematuria. Locally to the skin it is rubefacient, and even vesicant if applied for any length of time or if evaporation be prevented.

Turpentine-oil when exposed to the air readily absorbs oxygen in the form of ozone, which it retains tenaciously. This OZONIZED OIL OF TURPENTINE is an antidote to Phosphorus, preventing the formation of phosphoric acid, and converting the phosphorus into an insoluble substance resembling spermaceti. Worn about the neck in an open vial it is believed to prevent necrosis of the jaw and steatosis of the organs in workmen exposed to phosphorus-fumes. It is also supposed to dissolve gall-stones.

Antagonists.

In cases of poisoning the stomach should be emptied, anodynes and demulcents administered, elimination favored, and special symptoms met as they arise.

THERAPEUTICS.

The Oil of Turpentine is employed externally as a rubefacient and counter-irritant in many conditions producing pain and inflammation. Cloths wrung out of hot water and then sprinkled with the oil (turpentine-stupes), are useful applications in sciatica and other neuralgiæ, lumbago, chronic rheumatism, chronic bronchitis, peritonitis with tympanites, pleurisy, renal colic, etc. It is one of the most efficient agents in hospital gangrene applied in full strength to the part affected. The liniment is in constant use for sprains, neuralgia, and other slight local affections.

Internally it is best employed in ulceration and hemorrhage of the intestines and in hemorrhages of a passive character from other organs. Active bleeding with a plethoric condition and hematuria are states in which it is contraindicated. It is often used with Ether (1 to 3) in biliary and flatulent colic, as an anodyne and antispasmodic. As a vermifuge tape-worm it must be employed in large doses (℥ss–ij), with oil to promote its rapid passage through the intestinal canal. The acid oil, which is old and contains ozone, is used in phosphorus ng. It is well employed as a stimulant to the heart and vaso- ystem in puerperal fever, yellow fever, traumatic erysipelas, pneu- capillary bronchitis, etc. It is also useful in chronic bronchial chronic cystitis, subacute gonorrhœa and similar affections of ous surfaces generally.

ations of the vapor or atomized oil are extremely beneficial in affections of the larynx and bronchi. The pure vapor is too irri- or inhalation, but it may be diluted with steam from a steam atom-

N TURPENTINE is one of the many remedies which have been used er.

BENE has been extensively used by Dr. Murrell, with excellent re- a remedy for obstinate winter-cough and emphysema of the lungs, ence, and flatulent dyspepsia, also in cystitis and in gleet. He has d it with benefit as a spray in phthisis and post-nasal catarrh, also ocaine in solution as a spray for coryza and hay-fever. Other rs, of several years' experience with this remedy in England, highly as an inhalant remedy in phthisis, bronchiectasis, chronic tis, and other pulmonary affections characterized by profuse, puru- pectoration. Dr. Rieu employs it extensively in bronchitis and rrhœa, in doses internally of gr. xv–xxx per diem,—but says that not affect the muco-purulent expectoration of phthisis (*Bull. Gén. ap., April* 30, 1886). It probably has no superior efficacy to e, Venice Turpentine, etc., except that it is without much odor, no taste.

INE HYDRATE is praised very highly in chronic and recurrent tis, night-cough from habit, colds, catarrhs and kindred affections. all acute and many chronic affections of the respiratory passages e field for the therapeutical action of this preparation.

OBROMÆ OLEUM, Oil of Theobroma, Cacao-but-

a fixed oil expressed from the seed of *Theobroma Cacao*, the te-tree, nat. ord. Sterculiaceæ, growing in Mexico, the West nd South America. The oil is a yellowish-white solid, of faint land taste and neutral reaction, and melting at 86° to 95° F.

eds are oval, about the size of almonds, and consist of shells and kernels, in which is found the alkaloid *Theobromine* $C_7H_8N_4O_2$, which closely resembles the latter being its methyl derivative. *Chocolate* is prepared by roasting the noving the shells, then crushing or grinding the kernels to a smooth paste, which molds.

O-BUTTER consists chiefly of Stearin with a little Olein. Its action is demulcent, and it does not become rancid on exposure to the air. Its chief use is as a basis for making suppositories. A cerate is prepared by melting together Cacao-butter 35, White Wax 35, Oil of Almond 30, adding a drop of Oil of Rose and coloring with a minute quantity of Carmine previously triturated with a drop of Water of Ammonia. This is known as Red Lip-salve.

THEOBROMINE has the same action and uses as Caffeine. (See *ante*, page 140.)

THUJA, Arbor Vitæ,—the fresh tops of *Thuja occidentalis*, a tree of the nat. ord. Coniferæ, commonly though incorrectly called White Cedar, and growing in swampy ground in Canada and the northern U. S. Its twigs are flattish and two-edged, with scale-like leaves appressed and closely imbricate in four rows, rhombic-ovate, obtusely pointed, having a roundish gland upon the back; of a balsamic, somewhat terebinthinate odor, and a pungently aromatic, camphoraceous and bitter taste. They contain a volatile oil, tannin, wax, resin, etc.; also *Pinipicrin*, $C_{22}H_{18}O_{11}$, a bitter principle, and *Thujin*, $C_{20}H_{22}O_{12}$, a yellow, astringent and crystallizable coloring principle, which is separable into glucose and *Thujetin*, $C_{14}H_{14}O_8$.

Preparations.

There are none official. The dose of a saturated, fresh tincture or fluid extract is ʒj 3–6 times daily. The Volatile Oil may be given in doses of ♏j–v.

PHYSIOLOGICAL ACTION.

Thuja resembles Savine in action very closely. It is stimulant, irritant, astringent, also aromatic, diuretic and emmenagogue. The oil is a gastro-intestinal irritant, and produces epileptiform convulsions in warm-blooded animals, and paralysis in cold-blooded ones. It causes rhythmical contraction and dilatation of the vessels, lowers the temperature, and is anthelmintic. Thuja is indirectly an abortifacient when given in doses sufficient to cause violent gastro-enteritis, and is reported to have produced an acute urethritis resembling gonorrhœa.

THERAPEUTICS.

Thuja in decoction has been usefully employed in coughs, rheumatic and arthritic pains, dropsy and amenorrhœa. It has also been given with benefit in intermittent fever and as an alterative blennorrhetic in chronic catarrh and bronchorrhœa. It is highly praised by Dr. Phillips for the cure of warts with narrow base and pendulous body, a strong tincture being applied locally and given internally at the same time in 5-minim doses twice daily. Dr. Piffard speaks strongly in its favor as a valuable agent for non-syphilitic warts (condylomata acuminata) of the penis and

a, for papillomatous growths in general, and for gleets dependent
ranular urethritis. It has been used in chronic gonorrhœa and pros-
s with asserted success, and is said to have cured epithelioma. The
as been employed as a vermifuge.

HYMI OLEUM, Oil of Thyme,—is a volatile oil distilled
Thymus vulgaris, Garden Thyme, a common shrub of the nat. ord.
atæ, indigenous in France but cultivated in our gardens. The oil is
e yellow or colorless, thin liquid, having a strong odor of thyme, a
, pungent and afterward cooling taste, and a neutral reaction, of sp.
bout 0.880, and readily soluble in alcohol. It consists of two por-
, the more volatile being a mixture of the hydrocarbons *Cymene* and
ene, the less volatile being chiefly *Thymol*, which is official.

hymol, $C_{10}H_{13}HO$,—is a stearoptene contained in Oil of Thyme and
e volatile oils of several other plants. It occurs in large, colorless,
gonal crystals, of aromatic odor, pungent taste and neutral reaction;
le in 1200 of water, 900 of boiling water, and in 1 of alcohol at 59°
eely in fats and oils, solutions of chloral and alkalies, ether, chloro-
etc. It liquefies with camphor. Dose, gr. ss–ij.

Unofficial Preparations.

mol Solution,—for antiseptic spray, 1 in 1000.
mol Gauze,—contains 1 per cent. of Thymol.
mol Ointments,—vary from 5 to 30 grains to the ℥.
mol Inhalation,—Thymol gr. xx, Alcoholis ʒiij, Magnesium Carbonate gr. x,
to ℥iij. A teaspoonful to a pint of water at 150° F. for each inhalation.
kmann's Antiseptic Fluid,—has of Thymol 1, Alcohol 10, Glycerin 20, and Water
rts.

PHYSIOLOGICAL ACTION.

L OF THYME has the same properties as the oils of other mints, and
ining a large quantity of Thymol it is similar to the latter in action.
YMOL in its action stands between Carbolic Acid and Oil of Tur-
ne. Like the former it is a powerful antiseptic and disinfectant. It
ocal irritant and anæsthetic to the skin and mucous membranes,
yzing the end-organs of the sensory nerves. When absorbed it para-
the nerve-centres in the spinal cord and in the medulla, lessening
action, slowing respiration, lowering the temperature and the
al tension, and in poisonous doses causing weakness, coma and
. Internally administered in doses of 20 to 30 grains per diem it
uces a sensation of epigastric heat, sweating, singing in the ears,
ess, a sense of constriction in the forehead, and increase of the
ry discharge, which assumes a dark, greenish hue. It is eliminated
he respiratory and urinary organs which it irritates considerably
g the process of its excretion. As an antiseptic it is much more
erful and permanent than Carbolic Acid and much less poisonous.

THERAPEUTICS.

THYMOL is chiefly employed in lieu of Carbolic Acid as an antiseptic for dressing wounds; as a gargle, spray or inhalation in laryngitis and diphtheria; as an ointment in ringworm, eczema and psoriasis, and as an injection in ozæna. A solution of 1 part in 1000 is the strength usually employed. Internally it has been used with success in diphtheria, typhoid fever, and other intestinal affections, diabetes, phthisis and vesical catarrh. Its fragrant odor renders it a very agreeable antiseptic application for ulcerated conditions of the mouth and fauces, but makes it very attractive to flies; which fact, together with its high price, will prevent it becoming a favorite in hospital practice. A solution, used as a mouth-wash, is very efficient in removing the odor of tobacco from the breath.

TIGLII OLEUM, Croton Oil,—is a fixed oil expressed from the seed of *Croton Tiglium*, a small tree of the nat. ord. Euphorbiaceæ, a native of India. The oil is of a pale or brownish-yellow color, somewhat viscid and slightly fluorescent, of fatty odor, acrid taste and slightly acid reaction; sp. gr. 0.940 to 0.955, soluble in 60 of alcohol, freely in ether, chloroform, or carbon disulphide. Its composition is very complex and has not been thoroughly made out, but it is known to contain the glycerides of several fatty acids, also a peculiar acid named *Tiglinic Acid*, $C_5H_8O_2$, which is isomeric with Angelic Acid. Dose of the oil, ♏⅓—ij, in pill, emulsion or tincture.

PHYSIOLOGICAL ACTION.

Externally Croton Oil is highly irritant, producing a pustular eruption which heals by scabbing and may leave unsightly cicatrices. Internally it is a powerful drastic cathartic, producing in one or two hours copious watery stools, in overdoses causing great congestion of the intestinal canal and perhaps death from gastro-enteritis. Vomiting usually occurs after large doses, so that the irritant hyper-catharsis is not always observed. It is absorbed into the blood, and produces glandular hyperæmia as well as direct inflammation of the intestinal mucous membrane, together with increased peristaltic action. Its cathartic power is increased by the addition of an alkali, and is manifested, though in less degree, when applied to the integument.

THERAPEUTICS.

Croton Oil is used as a hydragogue cathartic when a speedy and complete evacuation of the bowels, diminution of arterial pressure and prompt derivative action are desired, as in apoplexy, impaction of the intestines, dropsy, lead constipation, paralysis, etc. It is contraindicated where there is debility, organic obstruction, and inflammatory conditions of the stomach and bowels. The smallness of the dose makes it a very easily administered and manageable purgative. A considerable fraction of a drop is absorbed by a pellet of sugar, and may be given thus in repeated doses until the desired effect is obtained. It has been used as a vermifuge against tapeworm.

Externally it is used as a counter-irritant in ovaritis, bronchitis, pleurisy, rheumatism, neuralgia, glandular swellings, and in laryngeal and pulmonary diseases. The Linimentum Crotonis of the British Pharmacopœia contains 1 part of the oil in 3½ each of Alcohol and Oil of Cajuput, and is a useful pustulant preparation, being more manageable than the oil itself.

TONGA (Unofficial),—is a mixed drug said to be obtained from the Fiji Islands, consisting of thin barks, root-fibres and leaves tied into long bundles. The fibrous material is believed to be derived from *Rhaphidophora vitiensis*, a creeping plant of the nat. ord. Araceæ, containing starch, potassium chloride and a volatile alkaloid *Tongine*. The barky portion is referred to *Premna tatiensis*, a shrub or tree of the nat. ord. Verbenaceæ, and contains a little volatile oil, sugar, pectin, etc. A fluid extract is prepared by Parke, Davis & Co. of Detroit, and may be given in doses of ♏xxx–ʒj thrice daily.

Tonga was introduced by Drs. Ringer and Murrell as a remedy for neuralgia in 1880, stating that they had used it with gratifying results. Since then reports have differed considerably in regard to its efficacy, and from the fact that Dr. Ringer does not mention it in the last edition of his Handbook of Therapeutics, it may be inferred that his further experience with it has not borne out the claims first made.

TRAGACANTHA, Tragacanth,—is a gummy exudation from *Astragalus gummifer* and from other species of *Astragalus*, shrubs of the nat. ord. Leguminosæ, growing chiefly in the mountainous regions of Asia Minor and Persia. It occurs in shell-like, curved or contorted bands, translucent, faintly yellowish, horn-like, tough, swelling with water to a gelatinous mass, which is tinged blue by test-solution of iodine, and consists of a mixture of *Arabin*, or gum-arabic, which is soluble in water, and *Bassorin*, a gum which is insoluble in water but swells up in it, also a little starch.

Preparation.

Mucilago Tragacanthæ,—Tragacanth 6, Glycerin 18, Water to 100 parts. Dose, ℥j or more.

Physiological Action and Therapeutics.

Tragacanth is demulcent, but in large quantities it may cause indigestion. It is chiefly employed to suspend resins and heavy powders in emulsion. The mucilage may be used as a vehicle for active agents in gargles for pharyngitis, and to cause cohesion in the preparation of pills, troches, etc. It is a constituent of 13 of the 16 official troches, and is a better agent than acacia for making emulsions of cod-liver oil.

TRITICUM, Couch-grass,—is the rhizome, gathered in the spring and deprived of its rootlets, of *Triticum repens*, the Couch-grass, a perennial plant of the nat. ord. Graminaceæ, abounding in meadows and cultivated grounds, where it ranks as a weed, though of the same genus as wheat. The rhizome is very long, but as met with in the shops is cut into two sections about ⅗ths inch in length and $\frac{1}{12}$th inch thick, creeping, smooth, hollow in the centre, of straw color, and sweet taste. It contains much sugar and a gum-like principle *Triticin*. Dose, ʒj–℥j, in infusion or decoction.

Preparation.

Extractum Tritici Fluidum,—Dose, ʒj–℥j, well diluted.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Couch-grass is demulcent, emollient and a feeble diuretic. It is chiefly used in cystitis and irritable bladder. The infusion is a popular fever-drink in Europe, and has had of old a considerable reputation in dysuria.

ULMUS, Elm, Slippery Elm,—is the inner bark of *Ulmus fulva*, an indigenous tree of the nat. ord. Urticaceæ, and occurs in flat pieces of various sizes, having a slight, peculiar odor and a mucilaginous, insipid taste. It contains a large quantity of mucilage which it readily parts with to water.

Preparation.

Mucilago Ulmi,—Elm 6, Boiling Water 100 parts, macerated for two hours and strained. Dose, ad libitum.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Slippery-elm bark is demulcent, slightly astringent and somewhat tonic. It is used internally in diarrhœa, dysentery and affections of the urinary passages, and externally in the form of poultice as an emollient application in cases of inflammation. It is also employed in the dilatation of fistulæ, strictures and the os uteri.

UVA URSI, Bearberry,—the leaves of *Arctostaphylos Uva-ursi*, a low, evergreen shrub, of the nat. ord. Ericaceæ, inhabiting the northern latitudes and high mountains of Europe, Asia and America. The leaves are small, obovate, nearly sessile, shining, reticulated beneath, of a faint but hay-like odor, and a strongly astringent taste. They contain Tannic and Gallic Acids and 3 principles, viz.—*Arbutin*, $C_{24}H_{32}O_{14}$, a bitter glucoside, neutral, crystalline, soluble in warm water and resolvable into glucose and *Hydroquinone*, $C_6H_6O_2$;—*Ericolin*, $C_{34}H_{56}O_2$, bitter and amorphous;—*Ursone*, $C_{20}H_{34}O_2$, resinous, neutral, crystalline and tasteless. The Californian Manzanita (Arctostaphylos glauca) is an allied plant and also contains Arbutin and Tannin. Dose of the powdered leaves, gr. x–ʒj in infusion or decoction.

Preparations.

Extractum Uvæ-ursi Fluidum,—Dose, ♏x–ʒj.
Infusum Uvæ-ursi (Unofficial),—℥j–Oj. Dose, ℥j–ij.
Arbutinum, Arbutin (Unofficial),—Dose, gr. iij–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

UVA-URSI is astringent, tonic and feebly diuretic. Used in large quantity it produces vomiting and purging, and is alleged to have oxytocic power. ARBUTIN is an efficient diuretic, and is decomposed in the body, yielding Hydroquinone which is excreted by the kidneys as Hydroquinone-sulphuric Acid. This is non-toxic, imparts a brown color with antiseptic and slightly irritant qualities to the urine.

BEAR-BERRY was formerly used in all calculous affections and chronic disorders of the urinary passages. It has some reputation as an antilithic, and is no doubt useful in gravel, chronic nephritis, cystitis, urethritis, and kindred diseases. It relieves incontinence of urine, dysuria and strangury, and has proved serviceable even in uterine hemorrhages. ARBUTIN has been successfully employed in cardiac dropsy as a diuretic, also in urethritis.

VALERIANA, Valerian,—is the rhizome and rootlets of *Valeriana officinalis*, a large, herbaceous plant of the nat. ord. Valerianaceæ, having small, white, or rose-colored flowers, and opposite pinnate leaves on an erect, round and channeled stem. The plant is a native of Europe but is cultivated in Vermont and New York. The root is perennial, its rhizome about an inch long, upright, truncate at both ends, internally whitish or pale-brownish with a narrow circle of white wood under the thin bark. Odor peculiar, taste camphoraceous and bitter. It contains a complex *Volatile Oil*, from which are developed by oxidation *Valerene*, $C_{10}H_{16}$, which is a terpene, *Valerol* or Baldrian Camphor, $C_{12}H_{20}O$, and *Valerianic Acid*, $C_5H_{10}O_2$, which occurs also in many other plants and in cod-liver oil. The Valerianic Acid of pharmacy is obtained as a product of the oxidation of Amylic Alcohol, and from it are formed the various Valerianates. It is, however, not identical with the natural acid. Dose of the powdered root, gr. x–xxx.

Preparations of Valerian.

Abstractum Valerianæ,—Dose, gr. v–xx.

Extractum Valerianæ Fluidum,—Dose, ♏x–xxx.

Tinctura Valerianæ,—Strength 20 per cent. Dose, ʒss–ij.

Tinctura Valerianæ Ammoniata,—Valerian 20, Aromatic Spirit of Ammonia to 100 parts. Dose, ʒss–ij.

Oleum Valerianæ,—the volatile oil, sp gr. about 0.950, a greenish or yellowish, thin liquid, having the odor of valerian, an aromatic taste and a slightly acid reaction, readily soluble in alcohol. Dose, ♏ij–v.

The Oil is by far the best preparation for use, as the tinctures are extremely nauseous and the fluid extract is too bulky. The taste is best covered by Cinnamon.

Preparations of Valerianic Acid.

Ammonii Valerianas, Valerianate of Ammonium, $NH_4C_5H_9O_2$,—described on page 94. Dose, gr. ij–x.

Ferri Valerianas, Valerianate of Iron, $Fe_2(C_5H_9O_2)_6$,—described on page 217. Dose, gr. j–iij.

Quininæ Valerianas, Valerianate of Quinine, $C_{20}H_{24}N_2O_2C_5H_{10}O_2.H_2O$,—described on page 177. Dose, gr. j–iij.

Zinci Valerianas, Valerianate of Zinc, $Zn(C_5H_9O_2)_2.H_2O$,—described on page 404. Dose, gr. ½–iij.

The Valerianates are made with the acid produced from Amylic Alcohol, and do not represent the action of the plant, but rather that of the bases from which they are prepared.

PHYSIOLOGICAL ACTION.

VALERIAN is antispasmodic, and a gentle stimulant to the nervous and circulatory systems. It is sedative to reflex excitability, antagonizing the action of Strychnine, Brucine, Thebaine, etc., and is laxative, diaphoretic and anthelmintic.

Its taste and odor are very disagreeable, but cats are extravagantly fond of it. In these animals it greatly excites the sexual appetite, probably from a resemblance between its odor and theirs when under venereal excitement. After a time it produces in them violent spasms and convulsions.

In full doses it increases the action of the heart and raises the temperature, in most persons producing exhilaration (in some, slight mental disturbance), with formication of the hands and feet. Long used it induces a condition of low melancholy and hysterical depression. Large doses cause hiccough, diarrhœa, nausea and vomiting, frequent micturition with tenesmus of the bladder and lithates in the urine, mental disturbance even to delirium, reduced motility and sensibility, and lessened reflex excitability. The oil in large doses is paralyzant to the brain and the spinal cord, lowers the blood-pressure and slows the pulse.

The VALERIANATES follow their bases in general action, but are supposed to combine therewith some of the sedative qualities of the acid.

THERAPEUTICS.

Valerian was formerly much used in epilepsy, but it was probably only useful in the hysterical form of that disease (hystero-epilepsy). It is a valuable remedy in all forms of hysteria, especially when occurring in ng and delicate women. It is also useful in flatulence of infants in that of hypochondriacal and hysterical subjects, and in coughs of ous type, whooping-cough, diabetes insipidus, convulsions due to ns and in delirium with vital depression. In the coma of typhus the oil proved remarkably efficient in a series of 135 cases out of cases treated by it.

LERIANATE OF AMMONIUM is used in the same class of disorders as is rian. It is often a good remedy for nervous headache, administered -grain doses and in an elixir.

LERIANATE OF ZINC has been supposed to combine the antispasmodic r of valerian with the nerve-tonic effect of a zinc salt. It has been in chorea, epilepsy and neuralgia, frequently with considerable suc-

e VALERIANATES of IRON and QUININE are used as the salts of their ctive bases.

ANILLA,—is the fruit of *Vanilla planifolia*, a perennial, climbing of the nat. ord. Orchidaceæ, a native of the West Indies and trop- America, but cultivated in Java, etc. It has dark green, tough leaves, greenish-yellow sessile flowers, and long pods (6 to 10 inches), kled, warty, one-celled, containing a blackish-brown pulp with rous small seeds and acicular crystals, of peculiar and fragrant odor taste. Its characteristic odorous principle is *Vanillin*, or the methyl- of protocatechuic aldehyd, which oxidizes slowly in damp air to *llic Acid*, and may be resolved into methyl chloride and protocate- acid. Vanillin may be made synthetically from Coniferin or from nol. Dose, indefinite.

Preparations.

ctura Vanillæ,—10 per cent. Dose, a few drops according to the strength of flavor d.

chisci Ferri,—contain about $\frac{1}{10}$ per cent. of Vanilla.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

anilla is an aromatic stimulant, with considerable influence on the ous system. It is chiefly employed as a perfume and for flavoring oses, but has been used in hysteria and low fevers.

ERATRUM VIRIDE, American Hellebore,—is the rhizome rootlets of *Veratrum viride*, or Indian Poke, Poke-root, Swamp llebore, an indigenous plant of the nat. ord. Melanthaceæ, having lid, round stem, furnished with bright green leaves, and terminating a panicle of greenish-yellow flowers. The root is perennial, upright,

externally blackish-gray, internally grayish-white, 2 to 3 inches long, with numerous, shriveled rootlets, inodorous but sternutatory when powdered, taste bitter and very acrid. It contains several alkaloids, *Jervine*, $C_{26}H_{43}NO_2$, *Pseudo-jervine*, $C_{29}H_{43}NO_7$, *Cevadine*, $C_{32}H_{49}NO_9$, a very little *Rubijervine*, $C_{26}H_{43}NO_2$, and traces of *Veratrine*, $C_{37}H_{53}NO_{11}$, and *Veratralbine*, $C_{28}H_{43}NO_5$. *Veratroidine*, formerly regarded as one of its alkaloids, is now thought to be Rubijervine and Resin. Veratrum Viride also contains Gallic Acid and Sugar.

ALLIED PLANTS.

VERATRUM ALBUM, White Hellebore,—is a native of the mountainous regions of continental Europe, and so closely resembles V. Viride in appearance and characteristics that it may be considered a variety of the same plant. The rhizome was official in the U. S. P. 1870. It contains the alkaloids *Jervine*, *Pseudo-jervine*, *Rubijervine*, traces of *Cevadine*, and another powerful alkaloid *Veratralbine*, $C_{28}H_{43}NO_5$.

VERATRUM SABADILLA, Cevadilla, Asagræa officinalis,—is a bulbous plant of the nat. ord. Melanthaceæ, indigenous in Mexico and Central America. It contains the alkaloids *Cevadine* (formerly called Veratrine), *Cevadilline* and *Veratrine*, with *Veratric* and *Sabadillic* or *Cevadic* Acids. It is the source of the official Veratrine (see below). The seeds are official in the Br. Phar. under the title SABADILLA.

Preparations.

Extractum Veratri Viridis Fluidum,—Dose, ♏j-iv.

Tinctura Veratri Viridis.—50 per cent. Dose, ♏ij–x.

Norwood's Tincture of Veratrum Viride, has a very high reputation for efficiency,—Dose, ♏v, increased by ♏j every 3 hours, until pulse is down to 65, when the original dose will hold it there.

Veratrina, Veratrine,—is an alkaloid or mixture of alkaloids prepared from the seeds of *Asagræa officinalis* (see above). A white, or grayish-white, amorphous powder, highly irritant to the nostrils, of very acrid taste, producing tingling and numbness of the tongue and constriction of the fauces; slightly soluble in cold water, soluble in 3 of alcohol at 59° F., in 6 of ether, 2 of chloroform, 96 of glycerin and in 56 of olive oil. Dose, gr. $\frac{1}{50}$–$\frac{1}{10}$.

Unguentum Veratrinæ,—Veratrine 4, Alcohol 6, Benzoinated Lard 96 parts. For local use.

Oleatum Veratrinæ,—Veratrine 2, Oleic Acid 98 parts. For local use.

PHYSIOLOGICAL ACTION.

VERATRUM VIRIDE is in action closely allied to Aconite, being a powerful cardiac depressant and spinal paralyzant. It differs from Aconite in affecting the respiration to a much less degree,—in being a systemic emeto-cathartic—in paralyzing the motor system centrally, impairing the reflexes, but leaving sensation unimpaired,—and in having little or no diaphoretic or diuretic action. It causes great depression, but is seldom fatal; when death does result from its use it usually occurs by paralysis of the heart.

small doses Veratrum reduces the force of the pulse, but does not at
ffect its rate. If continued for some time, the pulse becomes very
soft and compressible; rising, on the least exertion, to be very
and feeble. At the same time there is great muscular weakness,
requently nausea and vomiting. Large doses increase these symp-
very much, the pulse becoming very rapid and so small as to be
t imperceptible; the skin is cold and clammy, and constant vomit-
xtreme debility, giddiness, impaired vision, and partial unconscious-
nsue.

VINE represents in part the depressant action on the circulation and
central nervous system. It does not, however, affect the vagus,
ut very slightly the voluntary muscles or the motor nerves. It irri-
he motor centres in the brain, causing convulsions; and lowers the
ons of the cord, of the centres in the medulla, especially the vaso-
, and those of the cardiac ganglia,—slowing the heart by direct
sion either of the cardiac muscle or its motor apparatus. It always
salivation, but never vomiting or purging; and kills by asphyxia,
art beating after respiration has ceased.

RATROIDINE, on the contrary, always causes emeto-catharsis, and
ces less violent convulsions. It stimulates the vagus centre and
zes the vagus ends, depresses the cord, and paralyzes the respiratory
,—but at the same time increases the excitability of the vaso-motor
. The result is great slowing of the pulse-rate and of respiration,
owering of blood-pressure, until the carbonized blood irritates the
otor centre, when the blood-pressure rises greatly. It probably
ts of Rubijervine and a toxic resin.

RATRUM ALBUM contains a very powerful alkaloid, *Veratralbine*, and
n irritant poisonous resin (?). Its general action is similar to that
congener, but it is much more irritant to the gastro-intestinal
s membrane, causing violent vomiting and purging, intense abdom-
nd œsophageal pain, greatly reduced temperature and pulse, collapse,
eath from cardiac and respiratory paralysis.

RATRINE is an acrid, intensely irritant powder, probably consisting
mixture of alkaloids. It causes violent sneezing, a burning sensa-
and free salivation. It affects the heart and circulation similarly to
her Veratriæ and in addition seems to be a direct poison to muscular
, and to cause violent convulsions before the muscular paralysis sets
The alkaloids *Jervine* and *Rubijervine* both depress the circulation,
the latter produces the emeto-catharsis.

Antagonists and Incompatibles.

ohol, Opium, Belladonna and Ammonia counteract the cardiac depression. Mor-
and Atropine should be administered hypodermically, or Laudanum internally with
lic stimulants, the recumbent position should be enforced, and dry heat applied to
dy. Caustic alkalies are incompatible, as they decompose the alkaloids.

THERAPEUTICS.

VERATRUM VIRIDE is inferior to Aconite in most of the fevers and inflammations, by reason of its lacking power over excretion. It renders good service, however, in the early stages of many parenchymatous and serous inflammations when occurring in sthenic subjects, especially in pneumonia. It is highly esteemed in puerperal fever and in many cardiac disorders, as simple hypertrophy, irritable heart, etc. It has been used with remarkably good results in many cases of acute mania and puerperal convulsions, and it is of service in aneurism to depress the circulation to the lowest point, but in this case the recumbent position must be strictly observed in order to secure safety. It should always be administered in small doses and its effects carefully watched.

In puerperal eclampsia large doses have been administered without danger and with decided benefit, as much as 20 drops of Norwood's tincture having been administered every hour for 5 consecutive days and nights in one case, the patient making a good recovery. The same preparation may be given hypodermically, in doses of ♏ij–iv.

VERATRUM ALBUM is the "Hellebore" of the ancient physicians, and was much used by them as a derivative in insanity. It is rarely used at present except by the homœopathists, who give it in the cold stage of cholera, in colic, in the vomiting and purging of summer diarrhœa, in whooping-cough and asthma.

VERATRINE is chiefly used externally. The ointment or oleate may be used with benefit in many cases of superficial neuralgia, myalgia and headaches, a small quantity being rubbed in over the seat of the pain. It may be absorbed through an abrasion of the cuticle and give rise to dangerous symptoms. Internally it has been employed as a cardiac sedative in fevers and inflammation, also in acute articular rheumatism, dropsies, dysmenorrhœa and various nervous affections, but its uncertainty of action and the dangerous depression which it may produce have caused it to lose favor as an internal remedy.

VERBASCUM, Mullein (Unofficial),—the leaves of *Verbascum Thaspus*, the Mullein-weed, a common plant of the nat. ord. Scrophulariacæ, having large woolly leaves and yellow flowers in dense spikes. Its chief constituent is mucilage, though the flowers contain an essential oil in very small proportion. An infusion of ℥iv of fresh leaves to the pint of milk is the form in which it has generally been given; this quantity to be taken thrice daily.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Mullein is emollient and demulcent, perhaps also slightly anodyne. It has long been a popular Irish remedy in pulmonary affections, as under its use the weight steadily increases in phthisis and other wasting disorders, while expectoration is rendered more easy, cough is palliated and the general condition improved. It is also recommended in cystitis, irritable bladder, and diarrhœa, and is employed as an enema in dysentery and as a poultice for hemorrhoids. The dried leaves may be smoked with benefit in aphonia from laryngeal irritation.

VIBURNUM, Black Haw,—is the bark of *Viburnum prunifolium*, an indigenous shrub or small tree of the nat. ord. Caprifoliaceæ, having sharply serrulate leaves, and small, white flowers in terminal cymes. The bark occurs in glossy, purplish-brown, thin pieces or quills covered with scattered warts and minute black dots; inner surface whitish and smooth, inodorous, somewhat astringent and bitter. It contains tannic, oxalic, citric and malic acids, sulphates and chlorides; also two resins, one of which is named *Viburnin*, and *Viburnic Acid*, which is identical with Valerianic Acid.

Preparation.

Extractum Viburni Fluidum,—Dose, ʒ ss–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Viburnum is considered to possess nervine, antispasmodic, astringent, diuretic and tonic properties, and to be especially useful in preventing abortion in the nervous diseases of pregnancy, and in dysmenorrhœa. It may be administered with cannabis indica, morphine, nerve-sedatives or simple aromatics. No exact observations have been made regarding its action, and its therapeutical claims are denied by many who have used it. It often excites nausea and vomiting.

Viburnum Opulus, *Cramp-bark, Cranberry-tree*,—another shrub of the same genus, is highly valued by many practitioners as a remedy in uterine and other abdominal pains, but is not official. The so-called "*Viburnum Compound of Dr. Hayden*," is stated by its manufacturers to consist of "the active principles of the Viburnum Opulus, Dioscorea Villosa, Scutellaria Lateriflora, and a combination of aromatics, prepared by a process peculiar to ourselves." This they call publishing the formula of the preparation.

VIOLA TRICOLOR, Pansy,—is the wild-grown, flowering herb of *Viola tricolor*, the Heart's-ease Pansy, a plant of the nat. ord. Violaceæ, native in Europe, but naturalized in the southern U. S. It has an angular and nearly smooth stem; leaves alternate, petiolate, ovate or oblong and crenate; flowers with an obtuse spur and variegated petals, inodorous, taste somewhat bitter and acrid. It contains an active alkaloid *Vio-*

line, allied in many respects to Emetine, and poisonous. There are no official preparations. Dose, gr. x–ʒj, in decoction.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Viola is mucilaginous, emollient, expectorant and slightly laxative. Its active principle is emeto-cathartic, but exists in very small quantity in the plant. A decoction of the fresh herb in milk, with a poultice of the same was formerly highly recommended in crusta lactea and impetigo. It is used with benefit in some forms of eczema, especially in that of the head and face, and has had some reputation in bronchitis and constitutional syphilis.

Viola Cucullata, the common Violet, is used in Pennsylvania with success as an internal antidote against rattlesnake venom. The leaves are eaten, and a poultice of salt and indigo is applied to the wound.

VISCUM, Mistletoe (Unofficial),—occurs in two species (1) *Viscum album*, the European Mistletoe, a small, parasitic, evergreen shrub, of the nat. ord. Loranthaceæ, growing chiefly on deciduous-leaved trees, and (2) *Viscum flavescens*, the American species, growing on oaks, elms, etc. They contain mucilage, starch, fixed oil, resin, salts, etc., and *Viscin*, or Bird-lime, which occurs also in Ilex aquifolium, Gentiana lutea and other plants. Dose, gr. x–ʒj in decoction, or ♏v–xxx of a ten per cent. tincture.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The berries of the mistletoes have produced emeto-catharsis, with great thirst, tenesmus, bloody stools, convulsions and even death in young children. The leaves and twigs have been used in epilepsy, hysteria, chorea, asthma and other nervous affections. The American plant is asserted to possess qualities similar to those of Digitalis, and to incite uterine contractions. It has been used in cardiac affections, dropsies, uterine hemorrhages and amenorrhœa, also as an abortifacient.

VITELLUS, Yolk of Egg,—is the yolk of the egg of the domestic fowl, *Gallus Bankiva*, var. *domesticus*. It is a viscid, reddish-yellow, opaque liquid, of bland taste, alkaline reaction, odorless, and may be regarded as a dense emulsion of oil suspended in water by means of albumen. It is coagulated by heat or by alcohol and contains *Vitellin*, which is a proteid related to casein, *Cholesterin* and *Albumin*, besides fat, inorganic salts, sugar, etc.

Preparation.

Glyceritum Vitelli, Glycerite of Yolk of Egg, Glyconin,—consists of Vitellus 45, Glycerin 55 parts rubbed together until thoroughly mixed.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

YOLK OF EGG is highly nutritive and forms a useful article of diet in exhausted conditions of the system, but its chief use in medicine is for emulsionizing oils and camphors. The GLYCERITE has the consistence of honey and forms an opaque emulsion with water. It is a very good vehicle for cod-liver oil (see *ante*, page 282), and an excellent protective application for burns, erysipelas, fissure of the nipples and many cutaneous disorders. It is also used as a cosmetic, and may be employed as an aliment.

XANTHOXYLUM, Prickly Ash,—is the bark of *Xanthoxylum fraxineum*, the northern species, and of *Xanthoxylum carolinianum*, the southern species of an indigenous shrub of the nat. ord. Rutaceæ, having small, greenish flowers, alternate unequally pinnate leaves, leaflets punctate with pellucid dots, stems and leafstalks armed with prickles. The bark of both species comes in curved or quilled fragments, of a brownish-gray color externally with whitish patches, and minute black dots, faintly furrowed, inodorous, bitter and pungent. That of X. fraxineum is about $\frac{1}{15}$ inch thick, has several two-edged spines each $\frac{1}{4}$ inch long, the bark of X. carolinianum is twice as thick as the other and is marked by many conical, corky projections, and by stout brown spines, arising from corky bases. It contains a volatile oil, a fixed oil, resin, gum, coloring matter and an alkaloid, *Xanthoxyline,* which is identical with *Berberine* (see *ante*, page 130). Dose, of the powdered bark, gr. x–xxx.

Preparations.

Extractum Xanthoxyli Fluidum,—Dose, ʒss–j.

Decoctum Xanthoxyli (Unofficial),–℥j to the quart. Dose, a pint during 24 hours in divided doses.

PHYSIOLOGICAL ACTION.

Xanthoxylum is a stimulant and aromatic bitter, a local and systemic sialagogue, diaphoretic, diuretic and emmenagogue. Its taste is aromatic, soon becoming acrid and bitter and causing profuse salivation, tingling in the tongue and increased secretion from stomach, intestines, liver and pancreas. It also increases the cardiac action and raises the arterial tension, and is classed among the vegetable alteratives, with Mezereum, Guaiac, Stillingia, etc.

THERAPEUTICS.

Xanthoxylum has a high reputation in chronic rheumatism, myalgia, lumbago and similar disorders, also in jaundice from catarrh of the bile-ducts, in dropsies, chronic pharyngitis and constitutional syphilis. In old cases of pharyngitis, the mucous membrane being glazed and dry, the decoction should be used as a gargle and ♏x–xxx of the fluid extract taken internally thrice daily. The bark, used as a masticatory, is a popular remedy for toothache, and has been frequently successful in paralysis of the tongue.

ZEA MAYS, Maize, Indian Corn.—This well-known species of the nat. ord. Graminaceæ, though itself unofficial, is the source of two drugs one of which is official, viz.—

Ustilago, Corn Smut,—Ustilago Maydis, nat. ord. Fungi, grown upon the stems, the pistils and the male inflorescence (tassel) of Zea Mays. It occurs in irregular, globular masses, sometimes 6 inches thick, and consisting of a blackish membrane, inclosing numerous globular, minute spores, their surfaces covered with echinulate warts. Its odor and taste are unpleasant, and it contains fixed oil, resin, pectin, gluten, sugar, an acid resembling the Sclerotic Acid of Ergot, and a volatile principle called *Secaline,* which is supposed to be identical with Trimethylamine.

Preparation.

Extractum Ustilaginis Fluidum (Unofficial),—may be made according to the general rule. Dose, ♏xv-ʒj.

Stigmata Maydis, Stigmata of Maize, Corn Silk (Unofficial),—should be gathered when the tassel has well shed its pollen. Its active principle is said to be *Maizenic Acid.*

Preparation.

Extractum Stigmatarum Maydis Fluidum (Unofficial),—made by the general rule for fluid extracts. Dose, ʒj–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The properties of USTILAGO, so far as examined, resemble those of Ergot and Nux-vomica combined. It is a spinal excitant, exalts sensibility and reflex action, producing tonic convulsions on the least irritation of the skin. It slows the heart by stimulation of the pneumogastric, dilates the pupil, causes muscular paresis, and death by tetanus of the respiratory muscles or by exhaustion. Experiments on its reputed oxytocic action have not substantiated the claims made for it in this respect, though it is said to have produced abortion in cows and other animals, after they had eaten the diseased grain. As a therapeutic agent Ustilago has been very little used, and when employed it has been as a substitute for Ergot.

STIGMATA MAYDIS is a certain but mild diuretic when given in full doses at short intervals. It is by some observers considered demulcent and anodyne, and is generally believed to have a specific or alterative influence over many disorders of the genito-urinary passages and the

ladder. It has been used with considerable success in inconti-
urine, uric and phosphatic gravel, gout, rheumatism, urethritis,
cute and chronic cystitis, cardiac dropsy and obstructive valvu-
e of the heart.

UM, Zinc, Zn,—is metallic Zinc, in the form of thin sheets, or
granulated pieces, and is a bluish-white metal, having the sp.
It occurs native as a Sulphide (*Blende*), as a Carbonate and a
Calamine), as a Red Oxide (*Zincite*), and as a mixture of Zinc
th Oxide of Iron and Manganese (*Franklinite*). Zinc is soluble
akest acids, and therefore should never be used for culinary ves-
salts are all more or less active poisons. Metallic Zinc is not
as a medicine.

Zinc Compounds and their Preparations.

etas, Acetate of Zinc, $Zn(C_2H_{3\,2}O)_2{\cdot}3H_2O$,—soft, white, micaceous or pearly,
blets or scales, somewhat efflorescent in dry air, of faintly acetous odor, sharp
te and a slightly acid reaction; soluble in 3 of water and in 30 of alcohol at
½ of boiling water and in 3 of boiling alcohol. Used locally as an astrin-
tion of gr. j or ij to ℥j, or internally in doses of gr. ½–ij.
rbonas Præcipitatus, Precipitated Carbonate of Zinc, $(ZnCO_3)_2{\cdot}3Zn(HO)_2$,—
palpable powder, permanent in the air, odorless and tasteless, insoluble in
cohol, but soluble in acids with copious effervescence. When strongly heated
er and carbonic acid gas, leaving a residue of oxide of zinc. Used locally
ive.
loridum, Chloride of Zinc, $ZnCl_2$,—a white, crystalline powder, deliquescent,
caustic, saline, and metallic taste and acid reaction, very soluble in water and
forming a clear or only faintly opalescent solution. Tonic and escharotic. For
e a solution in Spirit of Ether is the most convenient form, of the strength
ij, of which from 4 to 8 drops may be given twice daily. Strength of injec-
ollyria, gr. j–ij ad ℥j.
inci Chloridi,—an aqueous solution of Zinc Chloride containing about 50 per
salt. A clear, colorless, odorless liquid, of a very astringent, sweetish taste
d reaction. A powerful disinfectant for sinks, drains, etc. Used also as an
gonorrhœa, leucorrhœa, etc., in dilute solution, ½ to 1 per cent. *Burnett's*
Fluid is similar to the above but slightly stronger.
didum, Iodide of Zinc, ZnI_2,—a white, granular powder, very deliquescent,
sharp, saline and metallic taste and acid reaction, very soluble in water and
Dose, gr. ss–ij in syrup.
cidum, Oxide of Zinc, ZnO,—a soft, pale-yellowish powder, permanent in the
s and tasteless, insoluble in water or alcohol, but soluble in acids without effer-
Dose, gr. j–x, in pill.
um Zinci Oxidi,—strength 20 per cent., made with Benzoinated Lard, thor-
ed.
lphas, Sulphate of Zinc, $ZnSO_4.7H_2O$,—small colorless prisms or acicular
owly efflorescing in dry air, odorless, of sharp, saline, nauseous and metallic
cid reaction, soluble in 0.6 of water, insoluble in alcohol. Dose, as emetic,
—as a tonic and astringent, gr. $\frac{1}{10}$–ij, in pill. For *Villate's Solution*, see *ante*,

lerianas, Valerianate of Zinc, $Zn(C_5H_9O_2)_2.H_2O$,—soft, white, pearly scales,
d styptic taste and acid reaction; soluble in 100 of water and in 40 of alco-
F. Dose, gr. $\frac{1}{10}$–ij, in pill.
omide of Zinc is described under BROMUM, see page 133, and the *Phosphide*
SPHORUS, on page 305.]

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Zinc Salts are astringents, but milder ones than the salts of Lead. Its soluble compounds (the Chloride, Iodide, Sulphate and Acetate) are corrosive poisons, causing violent gastro-enteritis, and in some cases profound nervous depression. The CHLORIDE is a very powerful and painful escharotic or rather mummifier of the tissues, having great affinity for water, coagulating albumen and shrivelling the vessels. It is a very active disinfectant. The SULPHATE is also escharotic and a specific emetic, acting promptly by direct irritation of the stomach, and without much depression or after-nausea. In small doses it is tonic and astringent, in larger it would be a severe irritant but for its causing prompt emesis. The ACETATE resembles the sulphate in action. The OXIDE used externally is a mild, soothing astringent; used internally it enters the blood as a lactate or chloride, and acts as a mild astringent and as nervous sedative. Being almost insoluble in the stomach, it has but feeble diffusive power and consequently but slight activity. The CARBONATE resembles the Oxide in action. The IODIDE locally is a powerful escharotic and has been supposed to possess some alterative powers when given internally in addition to its astringent qualities as a zinc salt. The VALERIANATE acts as a nervous sedative, but its properties are in all probability due to its base and not to the acid combined with it.

Continued use of zinc salts produces symptoms similar to those chronic lead-poisoning, but of much less gravity. They manifest much less tendency to accumulate in the system than other metallic salts, and are excreted much more rapidly. Elimination takes place chiefly by the liver and intestinal glands.

[The actions of the Bromide and Phosphide are described respectively on pages 134 and 306.]

Antidotes and Incompatibles.

Lime-water, mucilaginous drinks, soap, tannic acid, milk, Potassium and Sodium Carbonates if given early, are the antidotes in poisoning by the salts of zinc. Incompatibles are—lime-water, alkalies and their carbonates, nitrate of silver, and vegetable astringents. Acetate of Lead produces double decomposition with zinc salts, but it is often used in solution with the sulphate as an injection.

THERAPEUTICS.

Zinc salts are chiefly employed in weak solution as mild astringent applications in catarrhs of mucous membranes, such as conjunctivitis, gonorrhœa, etc., and as unguents and lotions in skin-diseases, particularly in eczema, impetigo, herpes and erythema. The CHLORIDE is made into a paste with flour and glycerin for the destruction of lupus, epithelioma and other morbid growths, and for opening abscesses in locations where puncture or incision might be dangerous. The cuticle, if unbroken, should be removed by strong water of ammonia before the paste is applied, as it will not act through the epidermic tissue. It is a commonly used disinfectant and deodorant, and in weak solution (♏ iij–v of the Liquor to ℥j of water) makes a good lotion for putrid ulcers, and still weaker (gr. j–ij to the pint), is an excellent injection for gonorrhœa. The Iodide is not employed as an escharotic, nor has it ever been a favorite remedy for internal use. It is chiefly employed in solution as an application to enlarged tonsils, and as an ointment (1 part to 8 of lard) for the reduction of glandular enlargements. The Sulphate is used locally as an astringent to mucous surfaces generally, internally as an emetic in narcotic poisoning and croup, and in small doses as a tonic and antispasmodic in convulsive diseases, as chorea, hysteria, epilepsy, angina pectoris, asthma, etc. In diarrhœas and dysentery it is a good astringent, and is frequently combined with Opium and Ipecac. The Acetate is used for the same purposes as the Sulphate, but is usually preferred for collyria. The Oxide may be used as a dusting powder in intertrigo, and as an ointment in eczema and excoriated surfaces generally. In combination with Bismuth and Pepsin it is an excellent remedy for the summer diarrhœa of children, and with Aromatic Powder and Morphine it is very efficient in gastralgia. It is a good remedy in 3-grain doses for the night-sweats of phthisis, and has been successfully employed in epilepsy and neuralgia, in whooping-cough, hysteria, nervous headache and in bronchorrhœa to check the profuse secretion. It is much employed as an ingredient of cosmetics. The Carbonate is by some preferred to the oxide for local use in skin diseases. *Calamine Ointment*, which is a mixture of the impure carbonate (calamine) with the oxide and an unguent basis, was until recently a favorite application as a soothing protective to abrasions and inflammations of the integument. The Valerianate has been used in chorea, epilepsy, neuralgia and various anomalous nervous affectious, such as the nervous headache of hysterical women, nervous coughs and aphonia due to uterine and ovarian irritation.

[The Bromide and Phosphide are used entirely with reference to their respective non-metallic bases, under which titles their therapeutics are described.]

ZINGIBER, Ginger,—is the rhizome of *Zingiber officinale*, a plant of the nat. ord. Zingiberaceæ, having dingy-yellow flowers on a leafless flower-stalk, and long, lanceolate leaves on a separate stem. The plant is a native of Hindostan, but is cultivated in Jamaica, Sierra Leone, etc. The rhizome is about ⅜ inch broad, flattish, on one side lobed or clavately branched, of a pale-buff color, striate, agreeably aromatic and of a warm, pungent taste. It breaks with a mealy, fibrous fracture showing numerous small resin-cells and fibro-vascular bundles. It contains an aromatic volatile oil and a resin.

Preparations.

Extractum Zingiberis Fluidum,—Dose, ♏x–ʒss.

Tinctura Zingiberis,—20 per cent. Dose, ♏xx–ʒij.

Syrupus Zingiberis,—has of the fluid extract 2 per cent in sugar and water. D ʒss–ij.

Trochisci Zingiberis,—each troche contains of the tincture 2 grains, with Tragaca Sugar and Syrup of Ginger.

Oleoresina Zingiberis,—contains all the virtues of the root, and is extracted by eth Dose, ♏½–j, well diluted.

Ginger is also a constituent of Pulvis Aromaticus, Pulvis Rhei Compositus and Vin Aloës.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Ginger is sialagogue when chewed, sternutatory when inhaled, an externally a rubefacient. Internally it is a grateful stimulant and carminative, produces a sensation of warmth at the epigastrium and promotes th expulsion of flatus. It is employed as a carminative in colic, as a masticatory to increase the secretion of saliva and in relaxed conditions of th throat, also internally in atonic dyspepsia, to relieve flatulence, and as an adjunct to purgative agents to correct their griping properties. The syru is in common use as a flavoring adjuvant in prescriptions.

PART II.

ꝚMACY AND PRESCRIPTION WRITING.

ıcy (φάρμακον, a medicament),—may be defined as the art of
ıd preserving medicines, and preparing them for administra-
ay be divided into—
r Galenical Pharmacy,—dealing with the processes and prepa-
he Pharmacopœia ; and—
raneous or Magistral Pharmacy,—which includes the opera-
npounding and dispensing remedies as directed by the prescrip-
ysicians.

PHARMACOPŒIAS AND DISPENSATORIES.

macopœia is an official list of the drugs and their prepara-
nized by the medical profession of a certain country. In
ıntries the Pharmacopœias are published under government
d have the force of a legal standard ; in the United States its
is left to the medical and pharmaceutical professions and is
ry ten years by a convention called for that purpose. The
fficial Pharmacopœias, with their dates of latest revision or
ıre the following, viz.—
opœia of the United States of America, 1882.
Pharmacopœia, 1885.
opœa Germanica, 1882.
edicamentarius (*Pharmacopèe Française*), 1884.

above there are the Russian (P. Rossica, 1880) ; the Austrian (P. Austriaca,
wedish (P. Suecica, 1869) ; the Norwegian (P. Norvegica, 1879) ; the
Danica, 1868, 1874, 1876) ; the Belgian (P. Belgica, 1881) ; the Swiss
, 1872, 1876) ; the Spanish (F. Española, 1865) ; the Portuguese (P.
876) ; the Hungarian (P. Hungarica, 1871) ; the Netherlands (P. Neer-
) ; the Roumanian (P. Romãña, 1862) ; the Finnish (P. Fennica, 1863) ;
Hellenica, 1868) ; the Mexican (Nueva Farmacopea Mexicana, 1884) ;
macopœia of India, 1868, 1869. Italy, Chili and Japan are each about
onal pharmacopœia.

ensatory is a commentary on one or more pharmacopœias,
xtenso the physical and medicinal history of the drugs and

preparations, together with their doses, physiological action and
tics, and includes similar information about many drugs which
official in any pharmacopœia, but are of occasional use or general
A dispensatory is a private publication, of authority accordin
reputation of its author. The principal dispensatories are verita
encyclopædias, so elaborately do they deal with every subject
therein. Those of acknowledged value are—

The Dispensatory of the United States of America, by Drs. Wood and Bach
delphia, 16th edition, edited by Wood, Remington and Stadtler. Philadelph
B. Lippincott Company. 1888.

The National Dispensatory, edited by Drs. Stillé and Maisch. 4th edition.
phia, Lea, Bros. & Co. 1887.

The American Dispensatory, by King & Lloyd, Cincinnati, is the recognize
of the "eclectic" practitioners.

A Companion to the U. S. Pharmacopœia, by Drs. Oldberg and Wall. 2d ed
York, Wm. Wood & Co.—is an excellent book, but not so exhaustive as the
method of treating the subjects embraced in it.

A Companion to the British Pharmacopœia, by Peter Squire, is the standar
text-book on drugs in England, but in no degree compares with the Unite
National Dispensatories.

THE CONSTITUENTS OF VEGETABLE DRUGS.

The constituents of vegetable drugs may be classified as *solubl*
soluble, the first group containing those ingredients which may be
by suitable menstrua, the second such as resist the action of all
solvents.

The Soluble Constituents comprise both *inert* and *active*
the inert being chiefly starch, gum and pectin, which may b
separated by water. The active principles are alkaloids, acids,
cosides and other neutral principles, volatile oils, resins, etc.
of these may be extracted by Water alone (*e. g.* Morphine), and
cases the addition of acids or alkalies to the water will effect the
solution of many ingredients which are insoluble in water alon
rule, however, Alcohol is the most generally applicable of all s
vents, but from its hardening the cell-membranes instead of
them it prevents the osmosis of their contents. Drugs subjecte
holic or ethereal menstrua should have their cells thoroughly
torn, so that the solvent may be brought into actual contact
principles contained in them. The degree of disintegration
depends upon the size of the cells, ducts, tubes, intercellular spa
in which the active principles are enclosed. A very finely powd
is however open to objection from the packing of the particles
into an almost impenetrable mass when treated by the solve
average size of vegetable cells is about $\frac{1}{300}$ of an inch, while re
and other cavities are larger, averaging perhaps about $\frac{1}{100}$ in
Pharmacopœia prescribes in each instance the degree of finene

powdered drug employed in making certain of its preparations, or its bruising, slicing, etc., when such operations will answer. [Compare the article on Comminution in the following section.]

Alkaloidea, Alkaloids, (termination, —*ina*, —*ine*,) are natural principles existing in plants, and extracted therefrom by chemical art. They are organic bases, forming salts with acids, and regarded as compound ammonias, products of albuminous decomposition in the plant-cells during the process of growth. Like ammonia, they all contain N, with C and H; most of them also containing O, though a few are devoid of the latter element, occurring as oily liquids,—*e. g.* Nicotine, Coniïne, Sparteine, Piperidine, Lupuline, Lobeline, Muscarine. Alkaloids are generally insoluble in water, but soluble in alcohol; and their salts are more soluble in water than in any other liquid. They are easily decomposed by alkalies or alkaline carbonates; and are precipitated from their solutions by a solution of Iodine in Iodide of Potassium, by Potassio-mercuric Iodide, and by Picric, Phospho-molybdic and Phospho-tungstic Acids. They generally have a powerful physiological action, and their official names always end in —*ina*, (—*ine*).

There are 15 alkaloids official, either under their own names or under those of one or more of their salts. Of the latter there are 8 Sulphates, 4 Hydrochlorates, and 1 each Bisulphate, Acetate, Hydrobromate, Salicylate and Valerianate. The official alkaloids are as follows, viz.—

Apomorphina.
Atropina.
Caffeina.
Cinchonidina.
Cinchonina.
Codeina.
Hyoscyamina.
Morphina.
Physostigmina.
Pilocarpina.
Piperina.
Quinidina.
Quinina.
Strychnina.
Veratrina.

Unofficial, but *Important Alkaloids* are the following, viz.—

Aconitine.
Antifebrine.
Antipyrine.
Berberine.
Chinoline.
Cocaine.
Colchicine.
Coniïne.
Curarine.
Daturine.
Duboisine.
Emetine.
Gelsemine.
Homatropine.
Kaïrine.
Muscarine.
Pelletierine.
Thalline.

Glucosidea, Glucosides, (terminations, —*inum*, —*in*),—are organic compounds, belonging to the group of *Neutral Principles* which exist in plants; and which are resolved into *glucose* and some other principle, by the action of reagents or natural ferments. Few, if any, of these compounds, contain any N,—but among them are some very active agents. The official glucosides number six, and like other neutral principles, are designated by titles which end, in Latin in —*inum*, (English, —*in*), viz.—

Chrysarobinum, (Chrysarobin).
Elaterinum, (Elaterin).
Glycyrrhizinum, (Glycyrrhizin).
Picrotoxinum, (Picrotoxin).
Salicinum, (Salicin).
Santoninum, (Santonin).

Besides these, there are several other substances recognized by pharmacopœial names which terminate in *—inum*, *—in*, but which have no relationship to the group of Glucosides. They are the following, viz.—

Benzinum, Benzin,—A distillate consisting of hydrocarbons.
Benzoinum, Benzoin,—A balsamic resin.
Chinoidinum, Chinoidin,—A mixture of Cinchona alkaloids.
Glycerinum, Glycerin,—A liquid obtained from fats or fixed oils.
Lupulinum, Lupulin,—A glandular powder from the hop.
Pepsinum, Pepsin,—A digestive principle.
Pyroxylinum, Pyroxylin,—Soluble gun-cotton.

THE INSOLUBLE CONSTITUENTS are cellulose, lignin and sclerogen, which make up the cell-walls of vegetable substances, and are extremely intractable.

OFFICIAL PHARMACY.

OFFICIAL OPERATIONS.

The official operations are those processes which are directed in the pharmacopœia to be used in the preparation of medicines. Many of them are processes which are common to both chemistry and pharmacy, as precipitation and crystallization,—while others are peculiar to pharmacy, as percolation, trituration, etc. The most important of the pharmaceutical operations are briefly described below; for full details of the various apparatus used the student is referred to the more exhaustive treatises on Pharmacy.

Vaporization includes the various operations by which volatile matters are separated from fixed substances or from other matters which are less volatile, heat at varying temperatures being the agent used. The operations under this head are—*Evaporation*, *Distillation*, *Desiccation*, and *Sublimation*.

EVAPORATION in Pharmacy is the process by which the more volatile constituents of a liquid are driven off by heat for the purpose of reducing its volume or of purifying it, as in the preparation of extracts and fluid extracts, the crystallization of salts, etc. The vessels used should be shallow so as to expose a large surface of the liquid to the atmosphere. The heat used may be regulated by a water-bath, a steam-bath or sand-bath, and ordinarily should be kept below but near to the boiling point of the liquid treated. As organic substances are usually injured by long heating, small portions only of vegetable preparations should be subjected to this process, and the liquid should be frequently stirred in order to hasten the ration. In large laboratories vacuum-pans are employed to remove atmospheric pressure, enabling the evaporation to be accomplished at uch less degree of heat than if the liquid were exposed to the air. *ullition* or *Boiling* is a form of evaporation.

ONTANEOUS EVAPORATION is the evaporation of a liquid without the direct applica- of strong heat, but at the temperature of the room or closet used for the purpose. especially applicable to cases in which the residue is liable to injury or loss from h heat, or to secure finer crystals than can be obtained by quick evaporation of their ion.

istillation consists of two processes, (1) the evaporation of a liquid, the condensation of the vapor into a liquid in a separate vessel. The it used in the first part of the operation is heat, in the second part l. Its object is to separate mixed volatile and fixed substances, or to bine volatile substances which cannot otherwise be mixed, as in the aration of some of the official Waters. The apparatus used is of t variety, from the simple retort and receiver to the elaborate and ly stills.

ESTRUCTIVE OR DRY DISTILLATION is a process of decomposing an organic sub- e by heat into volatile products which are collected in a separate vessel, the residue g said to be carbonized. It is only employed by large manufacturers, for the prepara- of Acetic and Succinic Acids, Oil of Amber, Wood-tar, etc.

ACTIONAL DISTILLATION is the separation by distillation of substances which are ile at different temperatures, each being separately driven over and received in a l by itself. Different degrees of heat are successively employed in accordance with olatilizing points of the substances to be obtained.

ublimation is the distillation of a volatile solid, the product being ed a *sublimate*. Its objects are to purify volatile solids from impuri- and to collect such as result from chemical action at high tempera- s. The operation is carried on in iron, glass or stoneware retorts, and lts in *cake sublimates* or *powder sublimates* according as the temperature he condensing surface is high or low.

esiccation is the process of removing moisture from solids, and has ts object either the preservation of the substance, the reduction of its or the facilitation of its comminution. The operation should be ducted at as low a temperature as possible. Roots, leaves and seeds generally dried by being placed in trays of wire net-work and exposed uniform temperature in a room heated by steam. A better method is spend organic substances from the ceiling of an attic during warm ther; a slow process, but one which does not result in much loss of active volatile principles. Crystals and precipitates require a higher perature and are usually dried on a water-bath. When the water of stallization is to be expelled, as in desiccating Alum and Sulphate of n, a temperature of about 400° F. is required. In absorbing water from ohol Carbonate of Potassium and slaked Lime heated are employed, l in several instances Sulphuric Acid is the desiccator used.

Fusion is the process of liquefying solids by the application of high heat without the use of a solvent. It is employed in making ointments, plasters, etc., in purifying resins, and for the purpose of decomposition. The degree of heat required varies from a temperatnre of 90° F., sufficient to melt lard in an open vessel, to one of 800° F., employed in fusing Zinc in an earthen crucible; and may be regulated by the aid of the water-, steam- or sand-bath. The two former appliances limit the degree of heat applied, while the sand-bath prevents sudden changes in the temperature. Oil-baths and glycerin baths are employed in fractional distillation on a large scale.

Exsiccation or Calcination is the process of depriving a solid of its moisture or other volatile constituents by the application of heat without fusion. The term *Exsiccation* is usually applied to the vaporization of the water of crystallization from a crystalline body, *Calcination*, to such operations as the expulsion of carbonic acid and water from carbonates, as in the manufacture of Lime, Magnesia, etc.

Carbonization is the heating of organic substances without exposure to the air until the volatile constituents are driven off, and the residue assumes the characteristic appearance of carbon.

Incineration is the heating of organic substances with access of air until the carbon is consumed, the ashes remaining being the product desired.

Ignition in pharmacy means the process of strongly heating solids or semi-solid substances, the residue left being the product desired. It is used in the official quantitative tests for Phosphoric Acid, Phosphate of Ammonium and purified Sulphide of Antimony.

Deflagration is the heating of an inorganic substance with another which yields oxygen (usually a nitrate or a chlorate), the result being the decomposition of the body, with violent and sudden combustion.

Torrefaction or **Roasting** is the application of heat, in a less degree than for carbonization, to an organic substance for the purpose of modifying some of its constituents, as in the roasting of coffee and rhubarb. The latter substance when subjected to this process, loses its cathartic properties but retains its astringency, and is known as Torrefied Rhubarb.

Comminution is the process by which the aggregation of the particles of a solid body is overcome, and the body is reduced to pieces of varying sizes. Its object is to increase the surface exposed to the action of solvents, and it includes the mechanical operations of cutting, rasping, grating, crushing, stamping, grinding, pulverizing, triturating, levigating, elutriaing, granulating, etc. Apparatus of various kinds, as cutters, mortars and pestles, mills, etc., are used for the comminution, while spatulas are employed to loosen the particles, and sieves to sift the coarser from the finer. These last-named contrivances are of five sizes, designated by the number of their meshes to the inch, 80, 60, 50, 40 and 20, respectively permitting the passage of powders termed very fine, fine, moderately fine, moderately coarse and coarse.

Trituration is the comminution of a solid to an extremely fine powder by continued rubbing in a wedgewood mortar with an inert and gritty powder, Sugar of Milk being the substance directed to be used. The product is called a Trituration (see that title under OFFICIAL PREPARATIONS). The surfaces of the mortar and pestle-head should coincide closely, and the thorough comminution of the trituration is best accomplished by a circular motion of the pestle in gradually increasing circles, until the side of the mortar is reached, then reversing the motion, and gradually lessening the circles until the pestle reaches the centre again. The process is greatly facilitated by having the pestle attached to a long handle playing in an opening made in a piece of wood which is nailed at a convenient height. A weight may be fixed on top of the handle if a greater degree of friction be desired.

PULVERIZATION BY INTERVENTION is only another name for trituration when performed in a mortar and with solid bodies, the foreign substance used being subsequently removed. Potassium Sulphate may be employed as the medium for the pulverization of Gold, and is then dissolved out with water. Alcohol or Chloroform may be added to Camphor to aid its pulverization, and then removed by evaporation. Phosphorus may be pulverized by placing it in water, gently heating the latter until the phosphorus is melted, and agitating the whole while cooling.

LEVIGATION is trituration of a substance made into a paste with water or some other liquid, and resembles the old process of grinding oil-paints by hand on a slab of stone. This process is used for coarse materials, as chalk, etc., where the refuse is rejected, or for such substances as Red Oxide of Mercury, Oxide of Zinc, etc. When performed with a porphyry slab and muller it is termed Porphyrization.

ELUTRIATION is a water-sifting process for separating the coarser particles of insoluble substances from the finer. The substance is mixed with water and after the larger particles have fallen to the bottom, the liquid is decanted into another vessel, in which the light and powdery particles are collected.

Solution is the dissolving of a solid or a gaseous substance in a liquid, and may be *simple* when the substance undergoes no alteration, being recovered unchanged on evaporation, or *chemical*, when the dissolved body is chemically altered by the solvent or some other substance present, and cannot be recovered on evaporation. Simple Syrup is an instance of simple solution, the Syrup of Lime one of chemical solution. The liquid employed is termed a *solvent* before the substance is added to it, after the operation is completed the combined preparation is called a *solution*. If fully charged with the dissolved substance so that it will retain no more, it is known as a *saturated solution*. One liquid may be dissolved in another, or a gas may be dissolved in a liquid. The solution of solids is greatly facilitated by pulverization and by stirring the menstruum. Hea generally aids solution, most substances being more soluble in hot liquid than in cold ones. A saturated solution of one substance may still b capable of dissolving others. Rapid solution of solids without chemica change causes reduction of temperature, while chemical solution produce elevated temperature. *Circulatory Solution* is performed by suspendin the substance to be dissolved near the surface of the solvent in a gauze ba or on a porous shelf. The portion first acted on descends and produce a circulatory movement in the fluid, facilitating the solution of th whole.

SOLVENTS employed are chiefly Water, Alcohol, Glycerin, Acids and Oils. Others les frequently used are Ether, Chloroform, Benzin and Carbon Disulphide.

Washing is a simple mechanical process for separating soluble fro insoluble matter, by pouring upon it a liquid which will dissolve the solu ble portion. Various methods of doing this are in vogue and are ofte dignified with very high-sounding terms, as Lotion, Affusion, Ablutio etc. An ordinary wash-bottle, with the two glass tubes perforating th cork, is a convenient implement for directing a continuous stream upon precipitate, while for continuous washing a combination of bottles with funnel may be used.

Decantation is the pouring or drawing off a supernatant liquid in another vessel. If done by pouring, a guiding-rod for the liquid to ru on is an effective adjuvant; if by drawing, the *siphon* in some form usually employed.

Colation, or **Straining** is another very simple operation, so famili to every one of ordinary experience as to be scarcely worth describin The strainers are made of cotton flannel, fine muslin, gauze, woollen fe and other fabrics.

Filtration is a process of straining through a medium so fine as deliver the filtrate in transparent condition. The filters are made of pap usually, though charcoal, asbestos, sand and other articles are sometim employed, and are supported in a funnel of glass or other material held the ring of a retort-stand. The best filtering-paper is made in Sweden Munktell, and is white; but a good paper for ordinary use is the "Pr Dumas White," which should always be employed for filtering alkaline alkaloidal solutions. The gray French papers answer well enough f fluid extracts, tinctures or colored liquids, but should never be used f solutions containing free alkali.

Filtering-paper is folded by doubling a sheet upon itself, and then folding it ag directly in the middle. When opened four distinct sections appear, one of which separated from the other three, and the filter thus formed is placed in a funnel. T arrangement is known as a *plain filter*, which by repeated creasing is converted i the *plaited filter*; the latter being the form generally used in pharmaceutical operations of small extent. In large laboratories special processes of filtration are employed, with apparatus of more or less complexity for hot filtration, rapid filtration, etc.

Clarification is the separation from liquids of solid matter, which prevents their being transparent, without using filters or strainers. It may be effected by heat (as in the case of Mel Despumatum), by adding a lighter liquid, by adding albumen, gelatin, milk, or paper-pulp, by fermentation, or by subsidence of the particles in the form of a sediment through long standing.

Decoloration, or the removal of coloring-matter from liquids or from solids in solution, is effected by the use of animal charcoal, which in small operations may be arranged in a funnel or a percolator, and the liquid placed thereon. It should not be forgotten that charcoal absorbs many other principles besides coloring-matter, especially alkaloids, bitters, and astringents, so that the process of decoloration may be one of serious injury to the efficiency of the preparation.

Separation of liquids which do not mix with each other is a simple mechanical process performed with pipettes of various forms, or with funnels having stop-cocks in their necks. Special forms of receivers are used for the separation of volatile oils from the water which may accompany them during distillation.

Precipitation is the process of separating solids from their solutions, and is usually effected by chemical reaction, though it may be accomplished by other methods, as by adding a second liquid in which the substance is insoluble, by heating albuminous solutions, or by exposing solutions of silver salts to the action of light. The most familiar example of chemical precipitation is the addition of a solution of Mercuric Chloride to one of Potassium Iodide, the result being a double decomposition of the salts and the formation of Mercuric Iodide, which falls to the bottom of the vessel as a brilliant, red, insoluble and crystalline powder. The *precipitate* is the separated substance, which is usually thrown down, but it remains suspended in some cases, and in others it rises to the top. The *precipitant* is the substance which is added to produce the precipitation. A *magma* is a thick, tenacious precipitant remaining behind after the supernatant liquid is removed by decantation or otherwise. Precipitates are termed *flocculent*, *gelatinous*, *curdy*, *granular*, *crystalline*, etc., according to the forms assumed. In small operations they are usually collected on plain filters, and washed by the repeated addition of water.

Crystallization is the process which bodies undergo in passing from the liquid or the gaseous state to the geometrical forms called *crystals*. Six systems of crystals are recognized by crystallography, which has assumed the dignity of a separate science. Bodies which are not capable of crystallization are termed *amorphous*. Every crystallizable body assumes its own peculiar form, or some other form directly derived from or related to it. The process of crystallization is effected (1) by fusion and partial cooling, as in the cases of some metals and Sulphur; (2) by sublimation, as Benzoic Acid, Mercuric Chloride, etc.; (3) by deposition from hot saturated solutions while cooling; (4) by deposition from a solution during evaporation; (5) by deposition caused by passing a galvanic current through the solution; (6) by precipitation, as in the case of the Mercuric Iodide; (7) by the addition to the solution of a substance having a strong affinity for water, as in the adding of Calcium Chloride to an aqueous solution of Sodium Chloride, or Alcohol to a solution of Potassium Nitrate, or to an aqueous syrup. In a few cases amorphous solids may crystallize without undergoing liquefaction, as Sulphur, Barley-sugar, Iron or Brass wire. The methods most frequently employed are those by deposition from supersaturated solutions, and by deposition during evaporation. The more slowly the process is carried on the larger and more regular will be the crystals. The process is facilitated by use of foreign bodies as *nuclei* around which the crystals are deposited; a familiar instance being the thread in the centre of a mass of rock-candy.

The Water of Crystallization is the H_2O with which most substances combine in the act of crystallization, and the number of molecules thereof differs for each body and for the same body frequently under different conditions. *Exsiccation* is the driving off of this combined water by heat, the crystals assuming thereby the form of a dry powder. *Efflorescence* is a similar process occurring spontaneously on exposure of the crystals to the air, the effloresced portion appearing as a dry powder on the surface of the crystals. *Deliquescence*, on the other hand, is the act of absorbing water from the atmosphere, a property possessed by some substances which are therefore said to be *hygroscopic*.

Granulation is a process of reducing a coarsely crystalline substance to a granular powder by dissolving it in water and evaporating the solution with constant stirring until the product becomes perfectly dry. Many salts are thus treated for convenience in dispensing, as the Bromide, the Iodide, the Carbonate and the Citrate of Potassium. Sulphate of Iron, though generally dispensed in the exsiccated powder, may be granulated into minute crystals by filtering an aqueous solution of it into alcohol.

Dialysis is a process by which crystallizable substances are separated from non-crystallizable ones, by suspending a solution containing both upon a porous diaphragm having its under surface in contact with water. The crystalloids pass through the diaphragm, while the non-crystalline remain above it, and are termed *colloids*. Examples of the latter class are gelatin, gum, glue, starch, dextrin, albumen and extractive matters, which are generally the inert and valueless constituents of vegetable drugs. Parchment-paper and bladders are used for the diaphragm; the whole apparatus being termed the *dialyzer*, while the water into which the crystalloids pass is called the *diffusate*.

fficial preparation known as Dialyzed Iron or *Ferrum Dialysatum* is a col-
ance obtained by treating Ferric Chloride in solution with Ammonia, whereby
ate is precipitated and then dissolved by agitation. The mixture being placed
r, the crystalloids formed (Ammonium Chloride and Ferric Chloride), together
e acid present, pass into the diffusate, leaving the neutral colloidal liquid
Ferric Oxychloride) above on the septum.

ation is one of the processes of extracting the soluble princi-
drugs, and consists in steeping or soaking the comminuted sub-
a suitable liquid called the *menstruum*, generally alcohol, for a
ying from 2 to 14 days, during which it is occasionally agitated.
d is then poured off, the residue is expressed, and the mixed
filtered. Several of the official tinctures are prepared by this
nd many others are subjected to maceration first and perco-
rwards.

ssion is the forcible separation of liquids from solids, by sub-
em to pressure. Hand-pressure through straining-cloths may be
, but mechanical presses are more efficient and are coming into
se. Oils obtained in this manner are called *expressed* or *fixed*
stinguish them from the volatile oils obtained by distillation.

ation or **Displacement** is a process of obtaining the soluble
ts of a substance in powder by the descent of a solvent through
gh an ancient process for the making of lye from wood-ashes
n), it has only within the last forty years been adopted as an
ocess in pharmacy, and it is gradually taking the place of macera-
neans of extracting the soluble principles of drugs. The vessel
ld the powdered drug is called the *percolator*, of which there
forms employed by the manufacturers. The liquid used as a
called the *menstruum*, and when coming from the percolator it
the *percolate*. The U. S. Pharmacopœia gives the following
concerning this process:—

cess of percolation, or displacement, directed in this Pharmacopœia, consists
a substance, or substances, in powder, contained in a vessel called a percolator,
t action of successive portions of menstruum in such a manner that the liquid,
s the powder in its descent to the recipient, shall be charged with the soluble
, and pass from the percolator free from insoluble matter.

e process is successfully conducted, the first portion of the liquid, or percolate,
gh the percolator will be nearly saturated with the soluble constituents of the
eated; and if the quantity of menstruum be sufficient for its exhaustion, the
of the percolate will be destitute of color, odor, and taste, other than that
the menstruum itself.

colator most suitable for the quantities contemplated by this Pharmacopœia
arly cylindrical, or slightly conical, with a funnel-shaped termination at the
The neck of this funnel-end should be rather short, and should gradually
ly become narrower toward the orifice, so that a perforated cork, bearing a
tube, may be tightly wedged into it from within until the end of the cork is
outer edge. The glass tube, which must not protrude above the inner surface
should extend from one and one-eighth to one and one-half inch (3 to 4 cen-
yond the outer surface of the cork, and should be provided with a closely fit-

ting rubber tube, at least one fourth longer than the percolator itself, and ending in another short glass tube, whereby the rubber tube may be so suspended that its orifice shall be above the surface of the menstruum in the percolator, a rubber band holding it in position.

"The dimensions of such a percolator, conveniently holding five hundred grammes of powdered material, are preferably the following: Length of body, fourteen inches (36 centimeters); length of neck, two inches (5 centimeters); internal diameter at top, four inches (10 centimeters); internal diameter at beginning of funnel-shaped end, two and one-half inches (6.5 centimeters); internal diameter of the neck, one-half inch (12 millimeters), gradually reduced at the end to two-fifths of an inch (10 millimeters). It is best constructed of glass, but, unless so directed, may be constructed of a different material.

"The percolator is prepared for percolation by gently pressing a small tuft of cotton into the space of the neck above the cork, and a small layer of clean and dry sand is then poured upon the surface of the cotton to hold it in place.

"The powdered substance to be percolated (which must be uniformly of the fineness directed in the formula, and should be perfectly air-dry before it is weighed) is put into a basin, the specified quantity of menstruum is poured on, and it is thoroughly stirred with a spatula, or other suitable instrument, until it appears uniformly moistened. The moist powder is then passed through a coarse sieve—No. 40 powders, and those which are finer, requiring a No. 20 sieve, whilst No. 30 powders require a No. 15 sieve for this purpose. Powders of a less degree of fineness usually do not require this additional treatment after the moistening. The moist powder is now transferred to a sheet of thick paper and the whole quantity poured from it into the percolator. It is then shaken down lightly and allowed to remain in that condition for a period varying from fifteen minutes to several hours, unless otherwise directed; after which the powder is pressed, by the aid of a plunger of suitable dimensions, more or less firmly, in proportion to the character of the powdered substance and the alcoholic strength of the menstruum; strongly alcoholic menstrua, as a rule, permitting firmer packing of the powder than the weaker. The percolator is now placed in position for percolation, and the rubber tube having been fastened at a suitable height, the surface of the powder is covered by an accurately fitting disk of filtering paper, or other suitable material, and a sufficient quantity of menstruum poured on through a funnel reaching nearly to the surface of the paper. If these conditions are accurately observed, the menstruum will penetrate the powder equally until it has passed into the rubber tube and has reached, in this, the height corresponding to its level in the percolator, which is now closely covered to prevent evaporation, and the apparatus allowed to stand at rest for the time specified in the formula.

"To begin percolation, the rubber tube is lowered and its glass end introduced into the neck of a bottle previously marked for the quantity of liquid to be percolated, if the percolate is to be measured, or of a tared bottle, if the percolate is to be weighed; and by raising or lowering this recipient, the rapidity of percolation may be increased or lessened as may be desirable, observing, however, that the rate of percolation, unless the quantity of material taken in operation is largely in excess of the pharmacopœial quantities, shall not exceed the limit of ten to thirty drops in a minute. A layer of menstruum must constantly be maintained above the powder, so as to prevent the access of air to its interstices, until all has been added, or the requisite quantity of percolate obtained. This is conveniently accomplished, if the space above the powder will admit of it, by inverting a bottle containing the entire quantity of menstruum over the percolator in such a manner that its mouth may dip beneath the surface of the liquid, the bottle being of such shape that its shoulder will serve as a cover for the percolator.

"When the dregs of a tincture, or similar preparation, are to be subjected to percolation, after maceration with all or with the greater portion of the menstruum, the liquid portion should be drained off as completely as possible, the solid portion packed in a percolator, as before described, and the liquid poured on, until all has passed from the surface, when immediately a sufficient quantity of the original menstruum should be poured on to displace the absorbed liquid, until the prescribed quantity has been obtained."

Modification of the above Process.

"Authority is given to employ, in the case of Fluid Extracts, where it may be applicable, the process of Repercolation, without change of the original menstruum."

Testing is directed by the Pharmacopœia in convenient cases, for the purpose of ascertaining the identity and purity of its preparations; and

Reagents used is given at the end of the book, which is divided
: parts,—(1) *Articles used in Testing*, (2) *Test-solutions*, (3) *Volu-*
lutions. The analysis directed under the title of each prepara-
quently Qualitative, but often Quantitative, and of the latter both
imetric and the Volumetric methods are used. Pharmacopœial
ıd volumetric analysis are necessary to the work of the practical
st, and as the apparatus used is simple and the operations are
the line of his daily work, he should be familiar therewith. On
hand the proximate analysis of organic substances for their prin-
ıd the ultimate analysis of the same bodies for their elements,
high degree of skill and long experience, and should be left to
ssional chemist.

paratus used in testing consists of graduated flasks and jars, bu-
pettes, funnels, beakers, test-tubes, capsules, crucibles, reagent-
tc. The metric system is directed for all analytical work, and
atus employed should be graduated accordingly.

OFFICIAL PREPARATIONS.

harmacopœial preparations may be presented under various
of classification, one of the simplest being that which divides
o liquids and solids, the former being subdivided into groups
fter their principal bases, viz. :—

LIQUID PREPARATIONS.

,—Waters, Solutions, Infusions, Decoctions, Syrups, Honeys, Mucilages, Mix-
the last four containing sweet or viscid substances.
,—Fluid Extracts, Tinctures, Wines, Spirits, Elixirs.
l,—Oleoresins, Collodions.
us,—Liniments, Oleates.
—Vinegars.
Glycerines,—Glycerites.

SOLID PREPARATIONS.

Extracts.
Abstracts.
Resins.
Masses.
Pills.

Troches.
Confections.
Powders.
Triturations.
Suppositories.

Ointments.
Cerates.
Plasters.
Papers.

following descriptions of the pharmacopœial groups the compo-
ıd dosage of the various preparations are omitted, as they are
ailed in the section on Materia Medica, under the title in each
he principal constituent.

AQUEOUS PREPARATIONS.

:, Waters,—are aqueous solutions of volatile substances, which
ither solids, liquids, or gases, dissolved either by solution in cold
ater, by filtration through an absorbent powder, by percolation

through cotton saturated with the substance, or by distillation. The official waters number 15, including the two forms of Aqua itself, as follows, viz.:—

Aqua.
Aqua Destillata.
Aqua Ammoniæ.
Aqua Ammoniæ Fortior.
Aqua Amygdalæ Amaræ.
Aqua Anisi.
Aqua Aurantii Florum.
Aqua Camphoræ.
Aqua Chlori.
Aqua Cinnamomi.
Aqua Creasoti.
Aqua Fœniculi.
Aqua Menthæ Piperitæ.
Aqua Menthæ Viridis.
Aqua Rosæ.

Of the above-named two are made by simple solution (A. Amygdalæ Amaræ and A. Creasoti), three are made by passing gases through water (A. Ammoniæ, A. Ammoniæ Fortior, and A. Chlori), three are made by distillation (A. Aurantii Florum, A. Destillata and A. Rosæ), and the other six are made by percolation through cotton impregnated with the substance. All waters deteriorate when long kept, microscopic plants being propagated in them from spores from the atmosphere. They should be prepared only in such quantities as are needed for use within a reasonable time.

Liquores, Solutions,—comprise all aqueous solutions of non-volatile substances except the syrups, infusions and decoctions, which naturally form distinctive classes. Included among the Liquores is the Solution of Gutta-percha, the solvent of which is Chloroform; all the others being made with water. There are 28 official solutions, as follows,—the first 11 being simple aqueous solutions; the next 16 being chemical aqueous solutions, in which the properties of the dissolved substance are altered by chemical action; and the last-named being a solution in Chloroform.

Liquor Acidi Arsenici.
Liquor Arsenii et Hydrargyri Iodidi.
Liquor Calcis.
Liquor Ferri et Quininæ Citratis.
Liquor Iodi Compositus.
Liquor Pepsini.
Liquor Plumbi Subacetatis Dilutus.
Liquor Potassæ.
Liquor Sodæ.
Liquor Sodii Arseniatis.
Liquor Sodii Silicatis.
Liquor Ammonii Acetatis.
Liquor Ferri Acetatis.
Liquor Ferri Chloridi.
Liquor Ferri Citratis.
Liquor Ferri Nitratis.
Liquor Ferri Subsulphatis.
Liquor Ferri Tersulphatis.
Liquor Hydrargyri Nitratis.
Liquor Magnesii Citratis.
Liquor Plumbi Subacetatis.
Liquor Potassæ.
Liquor Potassii Citratis.
Liquor Potassii Arsenitis.
Liquor Sodæ.
Liquor Sodæ Chloratæ.
Liquor Zinci Chloridi.
Liquor Gutta-Perchæ.

Syrupi, Syrups,—are concentrated solutions of Sugar in Water or in aqueous liquids. They sometimes contain Acetic Acid, and occasionally Alcohol; and are termed *simple*, *medicated* or *flavored*, according as they are simple solutions of sugar in water alone, or contain soluble medicinal substances, or flavoring ingredients. The Sugar used should be very *dry*, fficial description corresponds with the *granulated sugar* of com- The permanency of these preparations chiefly depends on their g the proper relative proportions of sugar and water. They are either by solution with heat, by agitation without heat, by add- dicated liquid to simple syrup, by digestion or maceration, or by colation; these processes being all officially directed except the ey are best preserved by being poured while hot into pint bottles, ould be corked securely while full, and the tops dipped into ealing-wax. Fermented syrups are useless for dispensing pur- The number of official syrups is 34, as follows, viz.:—

us.
us Acaciæ.
us Acidi Citrici.
us Acidi Hydriodici.
us Allii.
us Altheæ.
us Amygdalæ.
us Aurantii.
us Aurantii Florum.
us Calcii Lactophosphatis.
us Calcis.
us Ferri Bromidi.
us Ferri Iodidi.
us Ferri Quininæ et Strychninæ sphatum.
us Hypophosphitum.
us Hypophosphitum cum Ferro.
Syrupus Ipecacuanhæ.
Syrupus Krameriæ.
Syrupus Lactucarii.
Syrupus Limonis.
Syrupus Picis Liquidæ.
Syrupus Pruni Virginianæ.
Syrupus Rhei.
Syrupus Rhei Aromaticus.
Syrupus Rosæ.
Syrupus Rubi.
Syrupus Rubi Idæi.
Syrupus Sarsaparillæ Compositus.
Syrupus Scillæ.
Syrupus Scillæ Compositus.
Syrupus Senegæ.
Syrupus Sennæ.
Syrupus Tolutanus.
Syrupus Zingiberis.

ta, Honeys,—differ from syrups merely in their being prepared ey as a base. The *Oxymel* and *Oxymel Scillæ* of the B. P. are reparations, containing also Acetic Acid. There are 3 official including two forms of honey itself, viz.:—

Mel.
Mel Despumatum.
Mel Rosæ.

lagines, Mucilages,—are thick, viscid liquids prepared by dis- um in water, or by extracting with water the mucilaginous prin- m certain plants. They are easily spoiled and should be kept mall quantities. The official Mucilages number 5, as follows, the t-named being prepared without heat, the two last-named with .:—

ucilago Acaciæ.
ucilago Cydonii.
Mucilago Sassafras Medullæ.
Mucilago Tragacanthæ.
Mucilago Ulmi.

ræ, Mixtures,—in official pharmacy are aqueous preparations of substances held in suspension by a suitable vehicle. In extem- s pharmacy the term mixture has a wider signification, as ex- under that head. They are generally prepared extemporaneously scriptions, as few of them are of the stability necessary to insure their preservation beyond a few days. The official Mixtures number 11, of which one (Mistura Ferri et Ammonii Acetatis) is misnamed, and should be entitled a Solution, as it does not contain any insoluble substance. Their names are as follows, viz.:—

Mistura Ammoniaci.
Mistura Asafœtidæ.
Mistura Amygdalæ.
Mistura Chloroformi.
Mistura Cretæ.
Mistura Ferri Composita.
Mistura Glycyrrhizæ Composita.
Mistura Magnesii et Asafœtidæ.
Mistura Ferri et Ammonii Acetatis.
Mistura Rhei et Sodæ.
Mistura Potassii Citratis.

Of the above-named, the first two are simple gum-resin emulsions, the third is a seed-emulsion, the fourth an egg-emulsion; the next four contain insoluble powders in suspension by the aid of gum arabic, sugar, etc., the next two do not contain insoluble powders in suspension, while the last is an effervescing mixture.

Infusa, Infusions,—are prepared by treating vegetable substances with hot or cold water without boiling. Cold water is preferred when the drug contains a desirable volatile principle, or when its active ingredient is injured by heat. The drug should be coarsely comminuted, sliced or bruised, and treated by maceration or percolation with the proper quantity of water, which in the absence of specific directions to the contrary should be 10 parts by weight to 1 of the drug. These preparations should be freshly made when required, as they are very prone to decomposition. The number of official Infusions is 5, viz.:—

Infusum Brayeræ.
Infusum Cinchonæ.
Infusum Digitalis.
Infusum Pruni Virginianæ.
Infusum Sennæ Compositum.

The proportions of drug to menstruum in the official infusions vary from 1½ per cent. in the case of Digitalis to 4 per cent. in the case of Wild Cherry and 6 per cent. in the cases of the others. Alcohol is an ingredient of the Infusion of Digitalis to prevent decomposition.

Many dispensing pharmaceutists are in the habit of making infusions from concentrated alcoholic tinctures or from fluid extracts. It is a very reprehensible practice, especially in those cases where the active ingredients are of a resinous nature and therefore precipitated when the alcoholic solution is added to water.

Decocta, Decoctions,—are made by boiling vegetable substances with water. As very few drugs contain active ingredients which are not injured by heat, these preparations have never obtained favor with scientific physicians. There are only 2 official Decoctions, viz.:—

Decoctum Cetrariæ.
Decoctum Sarsaparillæ Compositum.

The general official formula prescribes that an ordinary decoction, the ength of which is not directed by the physician, nor specified by the armacopœia, shall be prepared in the proportion of 1 part of the sub- nce to 9 of water. Decoctum Cetrariæ is one-half the aforesaid strength, ile the Compound Decoction of Sarsaparilla is of the full strength as to chief ingredient.

ALCOHOLIC PREPARATIONS.

Extracta Fluida, Fluid Extracts,—are permanent concentrated solu- ns of vegetable drugs, of uniformly definite strength if the crude drugs so, a cubic centimeter (♏ 16.23) in each case representing the medi- al powers of one gramme (gr. 15.43) of the drug, or approximately a nim of the finished preparation representing the active constituents of a in of the drug. They are officially directed to be prepared by perco- ion and partial evaporation, the menstrua employed being usually Alco- l, diluted Alcohol, or Alcohol and Water in various proportions, though ew are percolated with water, the alcohol being afterwards added. In eral instances Glycerin in different proportions is added to the first enstruum, and in the menstruum used for the extraction of Aconite ot Tartaric Acid is an ingredient. In the preparation of the fluid tract of Prunus Virginiana, the extraction is preceded by maceration th water and glycerin, in order to permit of the formation of Hydro- anic Acid by the reaction of the amygdalin and emulsin of the bark upon ch other, which takes place only in the presence of water. The glycerin ds to keep the dissolved matters in perfect solution, and also to better re- in the acid and volatile oil formed during the process. The fluid extract Glycyrrhiza is prepared with a first menstruum containing Ammonia, and at of Lactucarium is first treated with Ether and then put through an borate process in order to obtain a preparation which will make a clear ixture with water, syrup or glycerin. The menstruum directed to be ed in each case is intended to be that which will thoroughly extract all e active constituents of the drug and at the same time will leave the inert luble matters behind in the rejected portion, known as the *marc*. In anufacturing fluid extracts on a large scale, modifications of the official ocesses are necessary, and the methods used are generally percolation d maceration with hydraulic pressure, vacuum maceration followed by rcolation, percolation with incomplete exhaustion, or repercolation. e number of official Fluid Extracts is 79. They are named in the fol- wing list, the letters following each one in parentheses showing the char- ter of its menstruum, and representing Alcohol, Diluted Alcohol, cohol and Water, or Glycerin, by their respective initials.

Extractum Aconiti Fluidum (A).
Ext. Arnicæ Radicis Fl. (DA).
Ext. Aromaticum Fl. (A).
Ext. Aurantii Amari Fl. (A_2W_1).
Ext. Belladonnæ Fl. (A).
Ext. Brayeræ Fl. (A).

Ext. Buchu Fl. (A_2W_1).
Ext. Calami Fl. (A).
Ext. Calumbæ Fl. (DA).
Ext. Cannabis Indicæ Fl. (A).
Ext. Capsici Fl. (A).
Ext. Castaneæ Fl. (WA).
Ext. Chimaphilæ Fl. (DA_9G_1).
Ext. Chiratæ Fl. (DA_9G_1).
Ext. Cimicifugæ Fl. (A).
Ext. Cinchonæ Fl. ($D_1A_6G_1$).
Ext. Colchici Radicis Fl. (A_2W_1).
Ext. Colchici Seminis Fl. (A_2W_1).
Ext. Conii Fl. (DA).
Ext. Cornus Fl. (DA_4G_1).
Ext. Cubebæ Fl. (A).
Ext. Cypripedii Fl. (A).
Ext. Digitalis Fl. (A_3W_1).
Ext. Dulcamaræ Fl. (DA).
Ext. Ergotæ Fl. (A_3W_4).
Ext. Erythroxyli Fl. (DA).
Ext. Eucalypti Fl. (A).
Ext. Eupatorii Fl. (DA).
Ext. Frangulæ Fl. (A_1W_2).
Ext. Gelsemii Fl. (A).
Ext. Gentianæ Fl. (DA).
Ext. Geranii Fl. (DA_9G_1).
Ext. Glycyrrhizæ Fl. (DA).
Ext. Gossypii Radicis Fl. (A_3G_7).
Ext. Grindeliæ Fl. (A_3W_1).
Ext. Guaranæ Fl. (A_3W_1).
Ext. Hamamelidis Fl. (A_1W_2).
Ext. Hydrastis Fl. (A_3W_1).
Ext. Hyoscyami Fl. (A_3W_1).
Extractum Ipecacuanhæ Fl. (A).
Ext. Iridis Fl. (A_3W_1).
Ext. Krameriæ Fl. (DA_4G_1).
Ext. Lactucarii Fl. (A_1W_3).
Ext. Leptandræ Fl. ($DA_{17}G_2$).
Ext. Lobeliæ Fl. (DA).
Ext. Lupulini Fl. (A).
Ext. Matico Fl. ($A_{15}W_5G_2$).
Ext. Mezerei Fl. (A).
Ext. Nucis Vomicæ Fl. (A_8W_1).
Ext. Pareiræ Fl. (DA_4G_1).
Ext. Pilocarpi Fl. (DA).
Ext. Podophylli Fl. (A_3W_1).
Ext. Pruni Virginianæ Fl. (W_2G_1).
Ext. Quassiæ Fl. (DA).
Ext. Rhei Fl. (A_3W_1).
Ext. Rhois Glabræ Fl. (DA_9G_1).
Ext. Rosæ Fl. (DA_9G_1).
Ext. Rubi Fl. ($A_9W_7G_4$).
Ext. Rumicis Fl. (DA).
Ext. Sabinæ Fl. (A).
Ext. Sanguinariæ Fl. (A).
Ext. Sarsaparillæ Co. Fl. ($A_5W_6G_1$).
Ext. Sarsaparillæ Fl. ($A_3W_6G_1$).
Ext. Scillæ Fl. (A).
Ext. Scutellariæ Fl. (A_1W_2).
Ext. Senegæ Fl. (A_2W_1).
Ext. Sennæ Fl. (A_3W_4).
Ext. Serpentariæ Fl. (A_3W_1).
Ext. Spigeliæ Fl. (DA).
Ext. Stillingiæ Fl. (DA).
Ext. Stramonii Fl. (A_3W_1).
Ext. Taraxaci Fl. (A_2W_3).
Ext. Tritici Fl. (WA).
Ext. Uvæ Ursi Fl. (DA_9G_1).
Ext. Valerianæ Fl. (A_2W_1).
Ext. Veratri Viridis Fl. (A).
Ext. Viburni Fl. (A_2W_1).
Ext. Xanthoxyli Fl. (A).
Extractum Zingiberis Fluidum (A).

In nine instances only does the Pharmacopœia direct the making of other preparations from corresponding fluid extracts, these nine being the Syrups of Krameria, Lactucarium, Rubus, Senega, and Ginger, the Extract of Ergot, the Liniment of Belladonna, the Ointment of Mezereum, and the Mixture of Rhubarb and Soda. Notwithstanding this fact it is a common practice for dispensing pharmaceutists to make tinctures, syrups, infusions, etc., from fluid extracts; and some manufacturers put a label on the bottles containing their fluid extracts, giving the formulæ for so preparing other preparations. This practice is illegitimate, and tends to still further degrade the profession of pharmacy into a mere trade, so far as all dispensing is concerned.

A large number of unofficial fluid extracts are manufactured and for sale, one house alone carrying over 400 such on their catalogue. *Normal Liquids* are a class of superior fluid extracts introduced by Parke, Davis & Co., which are claimed to be adjusted to a maximum strength by accurate assays for alkaloidal strength made at each stage of their manipulation, irrespective of the amount of material required, which in the case of official fluid extracts is prescribed by the Pharmacopœia, regardless of the varying quality of drugs in the market. This firm prepares Normal Liquids of Aconite, Veratrum Viride, Belladonna (root or leaves), Cannabis Indica, Cinchona Calisaya, Cinchona Rubra, Colchicum oot or seed), Conium, Ergot, Digitalis, Gelsemium, Hyoscyamus, Ipecacuanha, Podo-hyllum, Nux Vomica, Rhubarb, and Stramonium (seed or leaves). Of these prepara-ons one cubic centimeter is equivalent to one gramme of the corresponding drug of andard alkaloidal strength. A fluid extract of Belladonna leaves may contain .25 or 5 per cent. of atropine, according to the quality of the drug employed; a Normal iquid will contain invariably .4 per cent. of the alkaloid, so that in a given dose it may e relied upon to produce a certain effect.

Tincturæ, Tinctures,—are alcoholic solutions of medicinal substances; nd with one official exception (Tincture of Iodine) are made from non-olatile bodies. They are prepared by percolation, maceration, solution r dilution; the menstrua employed being chiefly Alcohol, and diluted lcohol of various strengths, though in a few cases the Aromatic Spirit f Ammonia, and mixtures of Alcohol, Water and Glycerin are directed o be used. The Pharmacopœia prescribes a general formula for *Tinctures f Fresh Herbs*, according to which, when not otherwise directed, these reparations are to be made by macerating 50 parts of the Fresh Herb, ruised or crushed, with 100 parts of Alcohol for 14 days, then expressing he liquid and filtering. Of the 72 official Tinctures 2 are made with 5 er cent. of the ingredient, 20 with 10 per cent., 9 with 15 per cent., 23 ith 20 per cent., 1 with 35 per cent., 1 (Aconite) with 40 per cent., 3 ith 50 per cent., and 1 (Soap) with 65 per cent.; the others varying in trength from 0.4 per cent. in the case of Paregoric to 26 per cent. in that f the Compound Tincture of Benzoin. Fifty-four are made by percola-on, a few by solution or dilution, and the rest by maceration. The offi-al Tinctures are as follows, the figures placed after each giving the num-er of grains of the active ingredients in each fluid-drachm, viz.—

Tinctura Aconiti, 19.
Tinctura Alöes, 10¼.
Tinctura Alöes et Myrrhæ, 10¼.
Tinctura Arnicæ Florum, 10¼.
Tinctura Arnicæ Radicis, 5⅛.
Tinctura Asafœtidæ, 10¼.
Tinctura Aurantii Amari, 10¼.
Tinctura Aurantii Dulcis, 10¼.
Tinctura Belladonnæ, 8½.
Tinctura Benzoini, 10¼.
Tinctura Benzoini Composita, 13½.
Tinctura Bryoniæ, 4¾.
Tinctura Calendulæ, 10¼.
Tinctura Calumbæ, 5⅛.
Tinctura Cannabis Indicæ, 10¼.
Tinctura Cantharidis, 2⅓.
Tinctura Capsici, 2⅓.
Tinctura Cardamomi, 8½.
Tinctura Cardamomi Composita, 2⅓.
Tinctura Catechu Composita, 10¼.
Tinctura Chiratæ, 5⅛.
Tinctura Cimicifugæ, 10¼.
Tinctura Cinchonæ, 10¼.
Tinctura Cinchonæ Composita, 10¼.
Tinctura Cinnamomi, 5⅛.
Tinctura Colchici, 8½.
Tinctura Conii, 8½.
Tinctura Croci, 5⅛.
Tinctura Cubebæ, 5⅛.
Tinctura Digitalis, 8½.
Tinctura Ferri Acetatis.
Tinctura Ferri Chloridi.
Tinctura Gallæ, 10¼.
Tinctura Gelsemii, 7½.
Tinctura Gentianæ Composita, 7½.
Tinctura Guaiaci, 10¼.
Tinctura Guaiaci Ammoniata, 10¼.
Tinctura Humuli, 10¼.
Tinctura Hydrastis, 10¼.
Tinctura Hyoscyami, 8½.
Tinctura Ignatiæ, gr. ½ of Extract.
Tinctura Iodi, 4.
Tinctura Ipecacuanhæ et Opii, 10¼.
Tinctura Kino, 5½.
Tinctura Krameriæ, 10¼.
Tinctura Lavendulæ Composita, 2⅓.
Tinctura Lobeliæ, 10¼.
Tinctura Matico, 5⅛.
Tinctura Moschi, 5⅛.
Tinctura Myrrhæ, 10¼.
Tinctura Nucis Vomicæ, 10¼.
Tinctura Opii, 5½.

Tinctura Opii Camphorata, ⅕.
Tinctura Opii Deodorata, 5½.
Tinctura Physostigmatis, 4¾.
Tinctura Pyrethri, 10¼.
Tinctura Quassiæ, 5⅛.
Tinctura Rhei, 7½.
Tinctura Rhei Aromatica, 16½.
Tinctura Rhei Dulcis, 9.
Tinctura Sanguinariæ, 8½.
Tinctura Saponis Viridis, 36½.
Tinctura Scillæ, 8½.
Tinctura Serpentariæ, 5⅛.
Tinctura Stramonii, 5⅛.
Tinctura Sumbul, 4¾.
Tinctura Tolutana, 5⅛.
Tinctura Valerianæ, 10¼.
Tinctura Valerianæ Ammoniata, 10¼.
Tinctura Vanillæ, 5⅛.
Tinctura Veratri Viridis, 24.
Tinctura Zingiberis, 10¼.

Vina, Wines,—when medicated are practically the same as Tinctures, White Wine brought to a definite alcoholic strength (Vinum Album Fortius), being the menstruum used. The official Wines number 14, of which 3 are not medicated, 4 are made by solution or admixture, 3 by maceration and 4 by percolation. They are as follows, viz.—

Vinum Album, 10–12.
Vinum Album Fortius, 20–25.
Vinum Rubrum, 10–12.
Vinum Aloes, 6.
Vinum Antimonii, 0.4.
Vinum Aromaticum, 6.
Vinum Colchici Radicis, 40.
Vinum Colchici Seminis, 15.
Vinum Ergotæ, 15.
Vinum Ferri Amari, 8.
Vinum Ferri Citratis, 4.
Vinum Ipecacuanhæ, 7.
Vinum Opii, 10.
Vinum Rhei, 10.

The figures placed after the first three show the percentage of absolute alcohol which is required in each; those placed after the other members of the group show the quantity of the active ingredient used in preparing 100 parts of the Wine.

Spiritus, Spirits,—are alcoholic solutions of volatile substances, which may be solids, liquids or gases. They are officially prepared either by simple solution, by solution with maceration, by gaseous solution, by chemical reaction, or by distillation. The number of official Spirits is 22, as follows, viz.—

Spiritus Ætheris.
Spiritus Ætheris Compositus.
Spiritus Ammoniæ Aromaticus.
Spiritus Anisi.
Spiritus Aurantii.
Spiritus Camphoræ.
Spiritus Chloroformi.
Spiritus Cinnamomi.
Spiritus Gaultheriæ.
Spiritus Juniperi.
Spiritus Juniperi Compositus.
Spiritus Lavandulæ.
Spiritus Myrciæ.
Spiritus Myristicæ.
Spiritus Odoratus.
Spiritus Limonis.
Spiritus Menthæ Piperitæ.
Spiritus Menthæ Viridis.
Spiritus Ammoniæ.
Spiritus Ætheris Nitrosi.
Spiritus Frumenti.
Spiritus Vini Gallici.

Of these, the first fifteen are prepared by simple solution, the next three by solution with maceration, the next one by gaseous solution, the next one by chemical reaction, and the last two by distillation.

Elixiria, Elixirs,—are sweetened, aromatic, spirituous preparations containing active medicinal substances in small quantities. There is but one official Elixir (Elixir Aurantii), which is intended as a type of the class of unofficial elixirs so largely employed in extemporaneous pharmacy. It is practically a flavored alcoholized syrup, designed for use as an excipient with extracts, salts and tinctures.

ETHEREAL PREPARATIONS.

Oleoresinæ, Oleoresins,—are liquid preparations consisting principally of natural oils and resins extracted from vegetable substances by percolation with Stronger Ether. They differ from fluid extracts in not bearing any uniform relation to the drug of gramme to cubic centimeter, in containing principles which though soluble in ether are not in alcohol, and in some instances being devoid of principles which are insoluble in ether but soluble in alcohol. They are the most concentrated liquid preparations of drugs which can be produced, and are prepared by percolating the powdered drug with Stronger Ether until exhausted, recovering the greater part of the ether by distillation, and exposing the residue in a capsule to spontaneous evaporation until the remaining ether has evaporated. There are 6 official Oleoresins, viz.—

Oleoresina Aspidii (10–15).
Oleoresina Capsici (5).
Oleoresina Cubebæ (18–25).
Oleoresina Lupulini (50).
Oleoresina Piperis (5).
Oleoresina Zingiberis (6–8).

The figures in parentheses show the percentage of oleoresin yielded by each drug.

Collodia, Collodions,—are liquid preparations having for their base a solution of Pyroxylin in a mixture of Ether and Alcohol. They are intended for external use, being applied to the skin by means of a brush, and producing a film on the surface after the evaporation of the menstruum. There are 4 official Collodions, viz.—

Collodium.
Collodium cum Cantharide.
Collodium Flexile.
Collodium Stypticum.

The *Flexible Collodion* contains 5 per cent. of Canada Turpentine, and 3 per cent. of Castor Oil. *Styptic Collodion* contains 20 per cent. of Tannic Acid.

OLEAGINOUS PREPARATIONS.

Linimenta, Liniments,—are very thin ointments for external application and intended to be applied with friction to the skin. They are solutions of various substances in oily liquids or in alcoholic liquids containing fatty oils. Of the following 10 official Liniments the first 4 have Cotton-seed Oil, the next 4 have Alcohol and the last 2 have Oil of Turpentine as their respective bases.

Linimentum Ammoniæ.
Linimentum Calcis.
Linimentum Camphoræ.
Linimentum Plumbi Subacetatis.
Linimentum Belladonnæ.
Linimentum Chloroformi.
Linimentum Saponis.
Linimentum Sinapis Comp.
Linimentum Cantharidis.
Linimentum Terebinthinæ.

Oleata, Oleates,—are liquid solutions of metallic salts or alkaloids in Oleic Acid, intended for external administration. They are not definite chemical compounds, though the term is also employed in trade to designate certain solid preparations which are claimed to be chemical compounds of the same acid with various bases. [See under ACIDUM OLEICUM, *ante*, page 71.] There are 2 official Oleates, as follows, viz.—

Oleatum Hydrargyri (10 per cent.).	Oleatum Veratrinæ (2 per cent.).

ACETOUS PREPARATIONS.

Aceta, Vinegars,—are solutions of the active principles of certain drugs in Diluted Acetic Acid. They are made by percolation and each contain the soluble principles from 10 per cent. of drug. Acidulous menstrua form soluble salts with the alkaloids and possess antiseptic qualities. The official Vinegars number 4, viz.—

Acetum Lobeliæ.
Acetum Opii.
Acetum Sanguinariæ.
Acetum Scillæ.

GLYCERIN PREPARATIONS.

Glycerita, Glycerites,—are mixtures of medicinal substances with Glycerin. In the U. S. Phar. of 1870 there were 5 official Glycerites, which were solutions of Carbolic, Gallic, and Tannic Acids, Tar, and Sodium Borate, in Glycerin. They were very useful preparations for dispensing purposes, as they could be readily diluted with water or alcohol without precipitation. Only 2 Glycerites are now official, viz.—

Glyceritum Amyli.	Glyceritum Vitelli.

SOLID PREPARATIONS.

Extracta, Extracts,—are solid or semi-solid preparations obtained by evaporating solutions of vegetable principles. The drug is first powdered, then percolated with the appropriate menstruum to exhaustion. The first third of the percolate is reserved, the remainder is evaporated at a temperature not above 122° F. until its weight is ten per cent. of that of the drug used, then mixed with the reserved portion, and both are evaporated to a pilular consistence. The above is the general rule, but in several instances maceration is directed for 1 to 4 days before percolation; and in other cases, instead of reserving a portion of the percolate, the whole quantity is distilled until the alcohol is removed, and the residue is evaporated to a pilular consistence. The menstrua used are,—in 5 cases Alcohol, in 15 cases Diluted Alcohol of varying strength, in 8 Water, in 1 Water with 5 per cent. of Aqua Ammoniæ, and in 1 a diluted Acetic Acid. One extract is an inspissated juice (Ext. Taraxaci); one is made by evaporating a fluid extract (Ext. Ergotæ), and one by mixing extracts with aromatics (Ext. Colocynthidis Comp.). Five per cent. of Glycerin is added to 10 to prevent their becoming hard. The official Extracts number 32, and are named as follows, the letters in parentheses showing the nature of the menstruum used in extraction in each case, viz.—

Extractum Aconiti (A).
Ext. Aloes Aquosum (W).
Ext. Arnicæ Radicis (DA).
Ext. Belladonnæ Alcoholicum (A_2W_1).
Ext. Cannabis Indicæ (A).
Ext. Cinchonæ (A_3W_1).
Ext. Colchici Radicis (W).
Ext. Colocynthidis (DA).
Ext. Colocynthidis Compositum.
Ext. Conii Alcoholicum (DA).
Ext. Digitalis (A_2W_1).
Ext. Ergotæ (A_3W_4).
Ext. Euonymi (DA).
Ext. Gentianæ (W).
Ext. Glycyrrhizæ (W).
Ext. Glycyrrhizæ Purum (W).
Extractum Hæmatoxyli (W).
Ext. Hyoscyami Alcoholicum (A_2W_1).
Ext. Iridis (A_3W_1).
Ext. Juglandis (A).
Ext. Krameriæ (W).
Ext. Leptandræ (A_2W_1).
Ext. Malti (W).
Ext. Mezerei (A).
Ext. Nucis Vomicæ (A_8W_1).
Ext. Opii (W).
Ext. Physostigmatis (A).
Ext. Podophylli (A_3W_1).
Ext. Quassiæ (W).
Ext. Rhei (A_3W_1).
Ext. Stramonii (DA).
Ext. Taraxaci.

The proximate principles which are generally present in extracts, besides the peculiar principles of plants, are *sugar*, *tannin*, *extractive*, *chlorophyll*, *coloring-matter*, and *salts*. When an alcoholic solvent is used there are also present *resins*, *fats* and often *volatile oil*, and when the menstruum is not purely alcohol there is more or less *gum* and *starch*. One of these ingredients, named *Extractive* or *Apotheme*, is a deposit, soluble in water and alcohol, which has the singular property of passing into an insoluble substance under the influence of the atmospheric air with heat. It also has a tendency, when precipitated from solutions, to unite with other principles carrying them down with it. It is frequently present in extracts, hence its name.

Abstracta, Abstracts,—are solid, dry, powdered preparations, containing the soluble principles of the drugs from which they are made, and each representing twice the strength of the corresponding drug or its fluid extract. They are prepared by spontaneous evaporation of an alcoholic tincture at a low temperature (not exceeding 122° F.), mixing with it enough dried Sugar of Milk to make the product weigh one-half the weight of the drug, and then reducing it to a fine and uniform powder. They are permanent and portable preparations, not subject to variation in strength, nor to become hard and brittle. They were first introduced into the U. S. Pharmacopœia in the edition of 1880, and are 11 in number, viz.—

Abstractum Aconiti.
Abstractum Belladonnæ.
Abstractum Conii.
Abstractum Digitalis.
Abstractum Hyoscyami.
Abstractum Jalapæ.
Abstractum Podophylli.
Abstractum Senegæ.
Abstractum Valerianæ.
Abstractum Ignatiæ.
Abstractum Nucis Vomicæ.

The menstrua used for these are Alcohol 8, Water 1 for the two last-named, and Alcohol for the others; but 2 per cent. of Tartaric Acid is added in the case of Aconite, and 6 per cent. of HCl in the case of Conium.

Resinæ, Resins,—are solid preparations obtained by precipitating the resinous principles of plants from their alcoholic solution by the agency of water. They differ from alcoholic extracts in containing only those principles which are soluble in alcohol and insoluble in water, while the extracts contain all principles which are soluble in alcohol. There are 4 official Resins, viz.—

Resina Copaibæ.
Resina Jalapæ.
Resina Podophylli.
Resina Scammonii.

Massæ, Masses,—are Pill-masses prepared as described in the next paragraph. The official Masses number 3, viz.—

Massa Copaibæ.
Massa Hydrargyri.
Massa Ferri Carbonatis.

Pilulæ, Pills,—are spherical masses composed of medicinal agents and intended to be swallowed whole. The "*mass*" consists of the active ingredients and the *excipient*, the latter being the substance which gives to the mass its adhesive and plastic qualities. In official pharmacy the excipients are specified both as to composition and quantity in each case, and those directed to be used in the preparation of the 3 official Masses and the 15 official Pills are as follows, viz.—

5 are made with *Soap and Water*, viz.—Pil. Aloes, Pil. Aloes et Asafœtidæ, Pil. Asafœtidæ, Pil. Opii, Pil. Rhei.
3 are made with *Water* alone, viz.—Pil. Aloes et Mastiches, Pil. Catharticæ Comp., Pil. Rhei Comp.
3 are made with *Syrup*, viz.—Pil. Aloes et Myrrhæ, Pil. Ferri Comp., Pil. Galbani Comp.
1 with *Mucilage of Tragacanth*, viz.—Pil. Antimonii Comp.
1 with *Acacia and Water*, viz.—Pil. Ferri Iodidi.
1 with *Glycerin and Water*, viz.—Pilulæ Phosphori.
1 with *Confection of Rose*, viz.—Pilulæ Aloes et Ferri.
1 with *Honey, Syrup, and Water*, viz.—Massa Ferri Carbonatis.
1 with *Glycerin and Honey of Rose*, viz.—Massa Hydrargyri.
1 has no excipient, viz.—Massa Copaibæ.

The pharmacopœial directions for the formation of the pill-mass vary in each case, but in general they prescribe that the ingredients shall be mixed intimately, then beaten with the excipient to form a mass and divided into a certain number of pills. Two of the official pills are directed to be coated with an ethereal solution of the Balsam of Tolu, viz.—Pilulæ Ferri Iodidi and Pilulæ Phosphori. Full descriptions of the various details of pill-making are given in the section on Extemporaneous Pharmacy. The number of official pills is 15, for the composition of which the student is referred to their several titles in the section on Materia Medica. They are named as follows, viz.—

Pilulæ Aloes.
Pilulæ Aloes et Asafœtidæ.
Pilulæ Aloes et Ferri,
Pilulæ Aloes et Masticbes.
Pilulæ Aloes et Myrrhæ.
Pilulæ Antimonii Compositæ.
Pilulæ Asafœtidæ.
Pilulæ Catharticæ Compositæ.
Pilulæ Ferri Compositæ.
Pilulæ Ferri Iodidi.
Pilulæ Galbani Compositæ.
Pilulæ Opii.
Pilulæ Phosphori.
Pilulæ Rhei.
Pilulæ Rhei Compositæ.

Trochisci, Troches,—also called Pastilles, Tablets or Lozenges,—are ll flattened cakes of medicinal substances, prepared from a mass le with a basis of Sugar, some having Mucilage of Tragacanth, others nge-flower Water, Syrup of Tolu, etc., as excipients. They are conient preparations for the pocket-case, and are especially useful when active ingredients are intended to come into contact with the mucous ace of the throat. There are 16 official Troches, named as follows, —

Trochisci Acidi Tannici.
Trochisci Ammonii Chloridi.
Trochisci Catechu.
Trochisci Cretæ.
Trochisci Cubebæ.
Trochisci Ferri.
Trochisci Glycyrrhizæ et Opii.
Trochisci Ipecacuanhæ.
Trochisci Krameriæ.
Trochisci Magnesiæ.
Trochisci Menthæ Piperitæ.
Trochisci Morphinæ et Ipecac.
Trochisci Potassii Chloratis.
Trochisci Sodii Bicarbonatis.
Trochisci Sodii Santoninatis.
Trochisci Zingiberis.

Confectiones, Confections,—consist of medicinal substances formed a mass with Sugar, Honey, Water, etc., with the object of rendering n palatable and of preserving them from change. *Electuaries* are lar preparations, but this term is now obsolete. There are only two ial Confections, viz.—

Confectio Rosæ.
Confectio Sennæ.

Pulveres, Powders,—are usually prepared extemporaneously, but a compound ones have been made official, the ingredients being simply cted to be rubbed together until reduced to a fine powder and thorhly mixed. Special directions are given for the preparation of two,— Compound Effervescing Powder and the Compound Powder of Mor- ie. There are 9 official Powders, named as follows, viz.—

Pulvis Antimonialis.
Pulvis Aromaticus.
Pulvis Cretæ Compositus.
Pulvis Effervescens Compositus.
Pulvis Glycyrrhizæ Compositus.
Pulvis Ipecacuanhæ et Opii.
Pulvis Jalapæ Compositus.
Pulvis Morphinæ Compositus.
Pulvis Rhei Compositus.

he composition of each of these preparations will be found in the ion on Materia Medica, and under the title from which its name is ived, except that of the Compound Effervescing Powder which is ced under the title Potassium. Pulvis Ipecacuanhæ et Opii is really ituration.

Triturationes, Triturations,—form a class of powders having for their diluent Sugar of Milk, and possessing a definite relation between the active ingredient and the diluent. The Pharmacopœia prescribes a general formula for these preparations, according to which 10 parts of the Substance and 90 parts of Sugar of Milk are to be well mixed by a spatula, the latter being added in successive quantities, and both triturated in a mortar until the substance is intimately mixed with the diluent and finely comminuted. There is but one official Trituration (Trituratio Elaterini), though the Pulvis Ipecacuanhæ et Opii practically belongs to this class, except in respect of the proportions prescribed. For a further discussion of this subject see the article *Triturations* under the heading Extemporaneous Preparations.

Suppositoria, Suppositories,—are solid bodies containing medicinal substances, and intended for introduction into the vagina, rectum or urethra. There are no official suppositories enumerated, but the Pharmacopœia prescribes a general formula for their preparation, according to which the medicinal portion should be incorporated with Oil of Theobroma by rubbing them together at a temperature of 95° F. The mixture should then be poured into suitable moulds, and cooled on ice or in ice-cold water. Unless otherwise specified they shall be made to weigh about 15 grains each.

Unguenta, Ointments,—are soft, fatty mixtures of medicinal agents with a basis of lard, petrolatum, or fixed oils with a solid fat such as wax or spermaceti. They are intended for application to the skin by inunction, and have a melting point which is below the ordinary temperature of the human body. Of the 26 official Ointments 1 is prepared by chemical reaction, viz.—Unguentum Hydrargyri Nitratis; 5 by fusion and 20 by incorporation of the ingredients with each other by mixing them through the agency of a spatula and a porcelain slab. *Unguentum* itself is prepared by fusing together 80 parts of Lard and 20 of yellow Wax, and is the basis of 3 other ointments, while 16 have Benzoinated Lard as their basis.

Unguentum.
Unguentum Acidi Carbolici (10).
Unguentum Acidi Gallici (10).
Unguentum Acidi Tannici (10).
Unguentum Aquæ Rosæ.
Unguentum Belladonnæ (10).
Unguentum Chrysarobini (10).
Unguentum Diachylon.
Unguentum Gallæ (10).
Unguentum Hydrargyri (45).
Ung. Hydrargyri Ammoniati (10).
Ung. Hydrargyri Nitratis.
Ung. Hydrargyri Oxidi Flavi (10).
Ung. Hydrargyri Oxidi Rubri (10).
Unguentum Iodi (4).
Unguentum Iodoformi (10).
Unguentum Mezerei (25).
Unguentum Picis Liquidæ (50).
Ung. Plumbi Carbonatis (10).
Ung. Plumbi Iodidi (10).
Ung. Potassii Iodidi (12).
Unguentum Stramonii (10).
Unguentum Sulphuris (30).
Ung. Sulphuris Alkalinum (20).
Unguentum Veratrinæ (4).
Unguentum Zinci Oxidi (20).

ures in parentheses show the percentage of extract or other active t in the ointment. The composition of each may be found in n on Materia Medica under the title from which the preparation , except *Unguentum,* which will be found under the title ADEPS, *uentum Diachylon* under PLUMBUM.

a, Cerates,—are unctuous preparations similar to ointments but firmer consistence. They all contain Wax (Cera), and do not mperatures below 104° F. They are intended for external use, enerally spread on lint before being applied. There are 8 official ncluding Ceratum itself, which is made by fusing together 30 White Wax and 70 of Lard. The composition of the others und in the section on Materia Medica under the appropriate the figures in parentheses below give the percentage of drug to ach. Of the following-named 6 are prepared by fusion and 2 by tion.

m.
m Camphoræ (0.6).
m Cantharidis (35).
m Cetacei (10).
Ceratum Extracti Cantharidis (30).
Ceratum Plumbi Subacetatis (5).
Ceratum Resinæ (35).
Ceratum Sabinæ (25).

astra, Plasters,—are solid compounds, insoluble in water, of a but pliable consistence and intended for external application to eas of the body surface. They are prepared by incorporating l substances with certain bases, which are usually Lead Plaster f Lead), a Gum-resin, or Burgundy Pitch. The heat employed low so as to avoid decomposing the active agents, and should ntinued long enough to drive off any volatile constituents. The ass is then spread evenly on chamois skin, kid-skin or muslin. tituents of the following-named 17 official Plasters may be found tion on Materia Medica under their appropriate headings.

strum Ammoniaci.
Ammoniaci cum Hydrargyro.
strum Arnicæ.
strum Asafœtidæ.
strum Belladonnæ.
strum Capsici.
strum Ferri.
strum Galbani.
Emplastrum Hydrargyri.
Emplastrum Ichthyocollæ.
Emplastrum Opii.
Emp. Picis Burgundicæ.
Emp. Picis Canadensis.
Emp. Picis cum Cantharide.
Emplastrum Plumbi.
Emplastrum Resinæ.
Emplastrum Saponis.

foregoing only two are directed to be spread, viz.—Emp. Cap- muslin, and Emp. Ichthyocollæ upon taffeta, the others having acopœial prescription for the material to be used. Plasters g spread should remain soft, pliable and adhesive, without melt- heat of the body. To soften the surface, if old, it should be with a small portion of Tincture of Camphor.

Chartæ, Papers,—consist of strips of paper medicated by impregnation of its fibres with medicinal substances, or by being coated therewith. Of the 3 official Papers 2 are made with sized paper, and are intended for external application as vesicants or counter-irritants; the third (Charta Potassii Nitratis) is unsized paper impregnated with Nitre and intended for the inhalation of its fumes while burning. Those officially recognized are—

Charta Cantharidis. Charta Sinapis.
Charta Potassii Nitratis.

EXTEMPORANEOUS PHARMACY.

This is the most important division of the whole subject of Pharmacy, embracing as it does the preparation and dispensing of those medicines which are designed for immediate use and which are compounded on the prescriptions of physicians. Hence it comprises the chief portion of the daily work of the pharmacist, and can only be learned at the dispensing-counter and under the personal supervision of a competent master. In the following pages are given the most important of the general directions pertaining to this subject, with the object of enabling the young medical practitioner to familiarize himself with the compounding and dispensing of drugs so far as the limits of the book will admit of. The drug-store of the present day has degenerated so far from its legitimate business that ere long physicians will be compelled in self-defence to dispense their own medicines, thereby protecting themselves and their patients from the patent-medicine vending, the counter-prescribing, and the many other nefarious methods which have degraded the pharmacist from his old professional position to that of a mere trader in drugs and nostrums. The first outfit of every young doctor should include a few pharmaceutical instruments and a small stock of drugs. By daily handling of these, the tools of his profession, he will insensibly become familiar with the *technique* of the art, and even if he does not continue to dispense his medicines in after years he will never regret the practical knowledge which such a course will give him.

Compounding means the mixing or preparing of the drugs ordered in a prescription, and comprises all the operations of official pharmacy together with many other manipulations which will be described in their appropriate places.

Dispensing is the operation of putting up and issuing the drugs ordered in a prescription, and may apply to the already compounded preparations of official pharmacy as well as to those prepared extemporaneously.

WEIGHTS AND MEASURES.

The working formulæ of the U. S. Pharmacopœia are constructed on the system of parts by weight for all articles whether fluids or solids, except in the case of fluid extracts, for which the metric weights and measures are employed. On this system it really makes no difference what unit of weight is adopted in official pharmacy. However, the weights and measures referred to by physicians in prescribing and used by pharmacists in dispensing medicines are in the United States those of the Apothecaries' or Troy System of Weights (having 480 grains to the ounce and 5760 grains to the pound) and the Wine Measure, or those of the Metric System. On the other hand, the British Pharmacopœia recognizes only the Imperial Standard (Avoirdupois) weights, having 437½ grains to the ounce and 7000 grains to the pound. The drachm (60 grains) and the scruple (20 grains) are intermediate units which are still used but are rapidly becoming obsolete. The units of the Wine Measure are the minim (♏), which in water at its maximum density equals gr. 0.95; the fluidrachm (60 minims) and the fluidounce (8 fluidrachms or 480 minims). The signs used to denote these units are ♏ minim, ℈ scruple, ʒ drachm, ℥ ounce, and in the case of liquids an f to denote fluid is often placed before the sign, thus fʒ for fluidrachm, f℥ for fluidounce. The relations between these units of weight and measure are as follows:

Measure.	*Weight.*	*Weight.*	*Measure.*
♏ j, One minim =	0.95 grains.	grain j =	1.05 minims.
fʒ j, One fluidrachm =	56.96 "	ʒ j =	63.20 "
f℥ j, One fluidounce =	455.69 "	℥ j =	505.60 "

Table of Troy or Apothecaries' Weight.

Pound. *Libra.* ℔		Ounce. *Uncia.* ℥		Drachm. *Drachma.* ʒ		Scruple. *Scrupulus.* ℈		Grain. *Granum.* gr.
1	=	12	=	96	=	288	=	5760
		1	=	8	=	24	=	480
				1	=	3	=	60
						1	=	20

Table of British Pharmacopœial Weight.

Troy grain, Avoirdupois ounce and pound.

Pound. *Libra.* ℔		Ounce. *Uncia.* oz.		Grain. *Granum.* gr.
1	=	16	=	7000
		1	=	437½

The Troy ounce contains 42½ grains more than the avoirdupois ounce, but the Troy pound contains 1240 grains less than the avoirdupois pound. The grain is the only unit common to both.

Table of Apothecaries' or Wine Measure.

Gallon. *Congius.* C.		Pint. *Octarius.* O.		Fluidounce. *Fluiduncia.* f℥		Fluidrachm. *Fluidrachma.* fʒ		Minim. *Minimum.* ♏
1	=	8	=	128	=	1024	=	61440
		1	=	16	=	128	=	7680
				1	=	8	=	480
						1	=	60

Table of British Imperial or Pharmacopœial Measure.

Gallon. *Congius.* C.		Pint. *Octarius.* O.		Fluidounce. *Fluiduncia.* floz.		Fluidrachm. *Fluidrachma.* fldr.		Minim. *Minimum.* min.
1	=	8	=	160	=	1280	=	76800
		1	=	20	=	160	=	9600
				1	=	8	=	480
						1	=	60

The Metric, or Decimal System of Weights and Measures, is generally used on the continent of Europe, and also by French and German physicians in the United States. Its three standard units are the following, viz.—

A Meter, the standard unit of linear measure and also of the whole system, is the ten-millionth part of the quadrant of the earth, *i. e.*, the forty-millionth part of the earth's circumference around the poles. One-tenth of the meter is the Decimeter, one-hundredth is the Centimeter, and one-thousandth is the Millimeter.

A Liter, the unit of measures of capacity, is the cube of a decimeter. One-thousandth of a liter is the Cubic Centimeter, which measure of pure water at its maximum density weighs one Gramme.

A Gramme, the unit of weight, is the weight of the one-thousandth part of a liter of water at its maximum density. Its tenth is the Decigramme, its hundredth is the Centigramme, and its thousandth part is the Milligramme.

The metric measures above noted are those used chiefly in pharmaceutical practice, but the system embraces many other terms of increase which are set forth in the following table.

10000	Myriameter.	10000	Myrialiter.	10000	Myriagramme.
1000	Kilometer.	1000	Kiloliter.	1000	Kilogramme.
100	Hectometer.	100	Hectoliter.	100	Hectogramme.
10	Dekameter.	10	Dekaliter.	10	Dekagramme.
1	**Meter.**	1	**Liter.**	1	**Gramme.**
.1	Decimeter.	.1	Deciliter.	.1	Decigramme.
.01	Centimeter.	.01	Centiliter.	.01	Centigramme.
.001	Millimeter.	.001	Cubic Centimeter or Milliliter.	.001	Milligramme.

The relations between the Metric Weights and Measures and the Apothecaries' are as follows, viz.—

1 meter = 39.370432 inches.
1 liter = 2.113433 pints.
1 gramme = 15.43234874 grains.
1 grain = 0.06479895 gramme.
1 minim = 0.0161613 cubic centimeter.

The Metric System is making way but slowly in this country although ts progress is aided by every process of forcing which scientific bodies can ring into action, and it remains to be seen how much its adoption in the ast edition of the U. S. Pharmacopœia will influence the medical profes-ion in its favor.

With all the influence brought to bear in its favor it certainly has not yet been adopted by any considerable proportion of native-born and home-educated physicians and pharmaceutists. Its chief disadvantage is one which is inherent to any decimal system, viz.—that the number ten cannot be divided more than once without producing a fraction. This is partly compensated for by the practice of dividing five into the three parts of 2, 2 and 1, and on this principle metric weights are usually constructed. In writing or reading prescriptions it is sufficiently accurate to consider a gramme as equivalent to 15 Troy grains, and a cubic centimeter (milliliter) as equivalent to 15 minims, or one-fourth of a fluidrachm. All other terms, units or prefixes belonging to the metric system may be wholly ignored by the physician and the pharmacist. The decimal point after the gramme or the cubic centimeter should always be replaced by a line, so as to avoid errors which in many cases might prove serious, from the misplacement of a point, the dropping of a spot of ink or the intrusion of a fly-speck. The simplest method of writing a metric prescription for one not practiced in the system is to *first write for one dose of the medicine in grains and minims, then by substituting the same number of grammes and cubic centimeters (fluidgrammes) we get fifteen doses in metric terms.* Of course when a mixture or solution is desired the proper quantity of vehicle must be added to give the dosage in such measures as may be deemed convenient for administration. For example,—

		One dose.	15 doses metric.	
℞.	Quininæ Sulphatis, ...	gr. j,	1	
	Strychninæ Sulph., ...	gr. $\frac{1}{64}$ or 0.016,		016
	Ext. Glycyrrhizæ Fl., ...	♏iv,	4	
	Syrupi, ...	♏lx,	60	

This gives a two-ounce mixture approximately, of which the dose would be "a teaspoonful thrice daily."

		One dose.	15 doses metric.	
℞.	Quininæ Sulphatis, ...	gr. j,	1	
	Massæ Ferri Carb., ...	gr. ij,	2	
	Ext. Nucis Vomicæ, ...	gr. ¼ or 0.25,		25

Ft. pil. No. xv. Sig.—One pill thrice daily after meals.

The above rule will answer for all liquids except those which are very heavy (as Syrups and Chloroform), or very light (as Ether). Measures may be entirely discarded, and all fluid quantities expressed in grammes. The average drop of water may be considered equivalent to 0.05 cubic centimeter (or gramme), the average teaspoonful to 5 c.c., the tablespoonful to 20 c.c., the Troy ℥ to 30 grammes, the fluidounce to 30 c. c., and 8 fluidounces to 250 c.c.

In prescribing Syrups or Chloroform, each Troy fluidounce should be reckoned at something more than 30 grammes—say 40; and if this be done, the difficulty of converting one scale into the other will be obviated. As to Syrups, Chloroform, etc., the following table shows the actual weight in grammes of each fluidounce of the substances named:

Fluid Oz.		Water. (Grammes.)	Tinctures. (Grammes.)	Syrup. (Grammes.)	Chloroform. (Grammes.)	Ether. (Grammes.)
℥i.	=	29.52	28.00	38.00	43.70	22.14
℥ii.	=	59.04	56.00	76.00	87.40	44.28
℥iv.	=	118.08	112.00	152.00	174.80	88.56
℥viii.	=	236.16	224.00	304.00	349.60	177.12

A table of equivalents between Apothecaries' and Metric Weights and Measures will be found in the Appendix.

Approximate or **Domestic Measures** become necessary in apportioning doses for a patient, when liquid medicines are used. Of these the measure most commonly employed is the teaspoonful, which is generally taken as equivalent to a fluidrachm, though in most cases as now manufactured the teaspoon contains about 75 minims, or 25 per cent. more than the theoretical quantity. The dessertspoonful is about equal to 2 teaspoonfuls, and the tablespoonful to about four teaspoonfuls or f℥ss, while the wineglass is supposed to contain about f℥ij. The use of graduated medicine-glasses is strongly recommended instead of the above approximate measures. They may be obtained at a trifling cost in any well-stocked drug-store.

Drops (Guttæ) are very variable in size, though popularly supposed to equal minims, the variations in their relative dimensions being due to the viscidity of the liquid, the shape and surface of the orifice from which they escape, and sundry other circumstances. The Syrups and Mucilages produce large drops, while Bromine, Chloroform, and other heavy mobile liquids produce very small ones. These differences are well illustrated in the following table which gives the number of drops in a fluidrachm of several liquids of certain classes. [See the Appendix for a fuller table.]

Syrupus Acaciæ, 44.
Syrupus Scillæ, 75.
Aqua, 60.
Liquor Potassæ, 62.
Liquor Hydrargyri Nitrat., 131.
Acetum Opii, 90.
Vinum Opii, 100.
Tinct. Opii Deodorat., 110.
Tinct. Opii Camph., 110.
Tinct. Opii, 130.
Tinct. Iodi, 148.
Tinctura Aconiti, 146.
Alcohol Dilutum, 137.
Alcohol, 146.

Oleum Ricini, 77.
Oleum Copaibæ, 123.
Oleum Juniperi, 148.
Spiritus Camphoræ, 143.
Spiritus Chloroformi, 150.
Ext. Digitalis, Fluid., 134.
Ext. Ipecac. Fluid., 120.
Ext. Cinchonæ Fluid., 138.
Ext. Zingiberis Fluid., 142.
Ext. Buchu Fluid., 150.
Ext. Hyoscyami Fluid., 160.
Æther Fortior, 176.
Bromum, 250.
Chloroform. Purif., 250.

Specific Gravity is the relative weight of equal bulks of different lies. The specific gravity of water at a certain temperature (generally F.) is taken as 1, and that of all other substances is expressed in terms his unit. The Pharmacopœia gives very complete tables of percentages l specific gravities of Alcohol, Acetic, Hydrobromic, Hydrochloric, ric, Sulphuric and Phosphoric Acids, and of aqueous solutions of Pola and Soda. The specific gravity of any substance is expressed by the tient obtained by dividing the weight of a given measure of the subnce by the weight of an equal measure of water. In pharmacy the cific gravity of solids is not of any importance, but that of liquids is a tter of constant value, and is determined in most cases by means of a cific gravity bottle or by a hydrometer, instruments which are described any standard work on chemistry or physics. Modifications of the drometer with scales adapted to particular work are the urinometer, charometer, lactometer, etc.

Specific Volume is the relative bulks of equal weights of different lies. In pharmacy it means the volume of the weight of a liquid comed with the volume of an equal weight of water at 59° F. The specific ume of a body is therefore inversely as its specific gravity, and is exssed by the quotient obtained by dividing unity by the specific gravity. $\frac{}{\text{gr.}}$ = sp. vol., and therefore sp. gr. × sp. vol. = 1.

A table of the specific gravity and specific volume of several liquids l be found in the Appendix.]

PRESCRIPTIONS.

Extemporaneous Prescriptions are formulæ written by the phyan on the instant (*ex tempore*) to meet the requirements of individual es. A prescription should begin with the name of the person for whom s designed, and the date on which it is written. Then follows the tin word *Recipe*, usually abbreviated to the sign ℞, and signifying ake," or "Take thou;" next the names and quantities of the ingrents to be used, which are also expressed in Latin; then the directions the compounder, followed by the directions to the patient, the last ing now usually expressed in English; and finally the signature of the escriber.

A prescription then consists of four parts, viz.—the

PERSCRIPTION,—consisting of the name of the party, the date and the sign ℞.
SCRIPTION,—the body of the prescription, which may consist of the—
Basis,—or chief, active ingredient.
Adjuvant,—to assist the action of the basis.
Corrective,—to correct some injurious quality of the other ingredients.
Vehicle or Excipient,—giving it a suitable form.

SUBSCRIPTION,—the directions for the compounder, usually expressed in contracted Latin.
SIGNATURE,—the instructions for the guidance of the one administering the medicine, in English, followed by the signature of the prescriber.

A prescription may however contain the base alone, or the base with the adjuvant, or the base with a simple vehicle or diluent, etc. A single ingredient may serve a double or treble office, as the Syrupus Rhei Aromaticus with Quinine, in which case the syrup serves as an adjuvant to increase the action of the quinine, as an excipient to cover the taste, and as a vehicle to facilitate the administration of the dose directed. The basis may not need any aid in doing its work, and may require no corrective of its action nor any special vehicle. On the other hand there is no limit to the number of ingredients which may be used, provided the prescriber has a clear idea of something to be accomplished by each one, and also provided that there is no chemical or medicinal incompatibility between them. In olden times prescriptions were very complex, and contained a great many curious and incongruous ingredients. As Dr. Piffard well says, "the tendency of the present age is toward mono- rather than poly-pharmacy, and prescriptions with the orthodox *adjuvans* and *corrigens* are less frequently seen than formerly." There is danger however in carrying this simplicity too far, for there is no doubt but that proper combinations of medicines will often produce effects for the patient's good, which could not be obtained from the use of any one remedy.

An example will perhaps make the foregoing analysis more comprehensible, and at the same time serve to indicate the style of abbreviation usually employed. The following formula is that of the Pharmacopœia for the Compound Infusion of Senna, or the old-time "Black Draught," except that approximate weights and measures are substituted for the pharmacopœial parts.

	For Mrs. Steele. *July 6th, 1886.* *Recipe*, Take,—	SUPERSCRIPTION.
(Basis.)	*Sennæ, semiunciam,* Of Senna, half an ounce; *Magnesii Sulphatis,* Magnesium Sulphate,	INSCRIPTION.
(Adjuvant.)	*Mannæ, ana unciam unam,* Manna, of each an ounce;	
(Corrective.)	*Fœniculi, drachmam unam,* Of Fennel, one drachm;	
(Vehicle.)	*Aquæ Bullientis, fluiduncias octo,* Of Boiling Water, eight fluid-ounces.	
	Macera per horam in vase clauso, deinde cola, Macerate for an hour in a closed vessel, then strain.	SUBSCRIPTION.
	Signa, Mark, or Write thus—*A wineglassful every four hours till it operates.* *T. F. Wood, M.D.*	SIGNATURE.

Abbreviated in the style usual with physicians the above prescription would read as follows, viz.—

For Mrs. Steele. *July 6th, 1886.*

℞

Sennæ,	℥*ss*
Magnes. Sulph.,	
Mannæ,	āā ℥j
Fœniculi,	℥j
Aq. Bull.,	f℥viij

Mac. per hor. in vase clauso, deinde cola.
Sig.—A wineglassful every four hours till it operates.

Wood.

The above is given as an example of an ordinary compound prescription, but as the result is nearly identical with an official preparation, we might write the prescription simply as follows,—

℞. *Infusi Sennæ Compos.* ℥viij.

and this is the manner of prescribing the official compound preparations. It will be noticed that the term "basis" in the analysis of the formula covers two ingredients; but either of the two might be considered the principal agent, and the other one classed as an adjuvant.

As Pareira says, "These four parts of a formula are intended to accomplish the object of Asclepiades, *curare cito, tute et jucunde;* in other words to enable the basis *to cure quickly, safely and pleasantly.*"

The Principles of Combination are so well laid down by Dr. H. C. Wood, that his words are appended *verbatim*, as follows,—

> The art of combining medicines is not a difficult one; but in practice certain principles should not be lost sight of. Chief of these are, to prescribe as few remedies as possible, and to use no powerful drug without a very distinct idea of what it is intended to do. Whenever it is desired to give a powerful remedy in increasing doses until its physiological effect is produced, it should always be given by itself. Thus, it may be necessary to give arsenic so as to impress the system, at the same time that iron is indicated; but the two remedies should be given separately, so that the dose of either can be increased or diminished independently of the other.
>
> The principles of combination formulated below were long ago enunciated by Dr. Paris, but are to-day as imperative as ever. Medicines are combined—
>
> *First.* To augment, correct, or modify the action of a medicine. Thus, purgatives act much more kindly when a number of them are united together. The chief reason of this probably is, that as different remedies affect different portions of the gut, the whole intestine is best reached by a union of the diverse substances. It may take an intense irritation of the mucous membrane to purge as actively as does a mild irritation of both the mucous membrane and the muscular coat. In the case of neurotics the principle has a very limited action, because so many of this class of remedies are physiologically more or less antagonistic; yet sometimes the principle can be advantageously applied: thus, the anæsthesia of Chloroform or Ether may be prolonged by a hypodermic injection of Morphia; and Chloral and Morphia certainly make a mixture which is much more powerfully hypnotic than is either of the substances separately.
>
> *Second.* To obtain the joint action of two or more diverse remedies. Thus, in a cough mixture Morphia may be included to quiet the cough, whilst Ipecacuanha and Squill (in accordance with the first principle) are added to affect the mucous membrane. The application of this principle requires caution, or the practitioner will be led into that chief abomination—polypharmacy. It is worse than futile to attempt to prescribe for every symptom. It is the underlying cause of the disorder or the under-stratum of bodily condition which must be sought out and prescribed for simply.
>
> *Third.* To obtain a special combination, which is really a new remedy, or which expe-

rience has shown acts almost as a new remedy. Thus, when to Iodide of Potassium in solution Corrosive Sublimate is added, a new chemical compound is formed, which experience has shown to be of great value in syphilitic diseases. Griffith's antihectic mixture is another instance of the use of chemical changes, the Proto-carbonate of Iron being formed out of the Sulphate of the metal and the Carbonate of Potassium. In the famous Dover's powder no chemical change occurs, but the ordinary action of Opium upon the skin is so enhanced that the combination may be looked upon almost as a new remedy.

Fourth. To afford a suitable form. Thus, Acacia is added to make an emulsion, or Confection of Rose to make a pill. In the choice of excipients care should be exercised to select a substance free from medical properties, having no chemical incompatibility with the medicinal agent, and of suitable physical character. Bread crumbs often make a good basis for pills; but with Nitrate of Silver they are chemically incompatible, on account of the chlorides in them. When writing a prescription, the utmost care should be taken to use such excipients that the combination should not only be attractive to the eye, but also as little repulsive to the palate as may be. Whenever possible, the pill-form should be employed with bitter or disagreeable medicines. The pill may be readily coated with silver-foil; tonic pills may be coated with Iron by shaking or rolling them in Ferri Pulvis whilst soft and sticky. Sugar-coated pills and "compressed pills" are apt to get so hard and insoluble that their use requires caution. In regard to mixtures, flavoring oils should be freely used, and the power of Glycerin to conceal the disagreeable taste of many substances should be remembered.

In Writing an Extemporaneous Prescription, the first step is to put down the superscription, consisting of the name, date and the sign ℞. Next the name of each ingredient should be written in Latin and in the genitive case, each one on a separate line. Then the quantity of each article sufficient for one dose should be mentally determined and multiplied by the number of doses which the mixture is to contain, and the result set down in signs and Roman numerals. The directions to pharmacist and to patient being added, and the prescriber's name or initials affixed, the prescription is completed; but when very active agents are used, it is a good plan to go over the calculations a second time befo letting it leave the hands of the person most responsible for its actio For pills or powders the same process should be employed, slightly varie according to the requirements of each case. Frequently the ingredien and quantities for but one pill, powder or suppository are named, wit instructions to make a certain number after the formula. When a unusually large dose of any poisonous drug is prescribed, it is cu tomary to underline the quantity, so as to call the attention of th compounder to the fact that the prescriber is aware that the dose is abov the average.

There is no royal road to prescription-writing; practice, care an knowledge of the whole subject is necessary to enable one to turn ou habitually those elegant prescriptions which are properly termed "magi tral," being the work of a *magister*, or master of his business. A fa knowledge of the Latin language is a *sine qua non* to every profession man, but especially to the physician. It is pitiable to see a Doctor wr ignorantly of even the genitive case-endings of the drug-names which uses. The teaching of Latin is not within the scope of this work, a hence this part of the subject will be dismissed with the advice to the physician who is ignorant of that language to write his prescriptions wholly in English if he cannot write them in decent Latin.

Abbreviations, though very commonly used by physicians in prescribing, are a source of much annoyance to the compounder, and frequently one of great danger to the patient. Physicians who never knew anything of the Latin grammar, or those who have forgotten its rules, are very apt to use abbreviations to conceal their ignorance of case-endings. Many others use them through sheer laziness, and some from force of habit. The educated and conscientious man will take pride in turning out a full and clear prescription, free from cabalistic letters and all elements of uncertainty. In the Appendix will be found a list of the Latin terms used in prescriptions, with the abbreviations in vogue, and the English meaning. Ambiguous contractions may result fatally to the patient, as is readily seen by studying the following list, which gives a few examples of the dangers of careless abbreviation.

Acid. Hydroc.—may mean	Acidum Hydrochloricum. Acidum Hydrocyanicum.
Aconit.	Aconitine. Aconitum.
Ammon.	Ammonia. Ammoniacum.
Aq. Chlor.	Aqua Chlori. Aqua Chloroformi.
Aq. Fontis.	Might easily be read Aqua Fortis.
Chlor.	Chlorine. Chloral. Chloroform.
Hyd. Chlor.	Calomel. Corrosive Sublimate. Hydrate of Chloral.
Hydr.	Hydrargyrum. Hydras. Hydriodas. Hydrochloras. Hydrocyanas.
Sod. Sulph.	Sodium Sulphate. Sodium Sulphite. Sodium Sulphide.
Sulph.	Sulphur. Sulphide. Sulphate. Sulphite.
Zinci Phos.	Zinc Phosphate. Zinc Phosphide.

Prescription Blanks. After many years' experience in prescribing on blanks furnished by druggists, the writer has come to the conclusion that it is much better, for many reasons, for the physician to have his own blanks, without the address of any drug-store thereon. These blanks should be furnished with stubs on which to write the prescription at first in rough, afterwards copying it out cleanly on the main blank. A careful prescriber always writes a formula twice before letting it go out of his hands. If he does the first writing on the stub of a book of blanks he will always have a copy of such prescription in his possession, for which he will often be thankful. The blank used by the writer measures 4¼ inches by 3¼, joined by a perforated edge to a stub 3¼ inches by 2½ inches. On the main blank the physician's name and address are printed, together with his office hours, and a place for number and date, also the sign ℞., and a line for signature. On the stub there are printed the words, "*Copy of Prescription No.* . . . . 188 . . *For* . . . . ," and on the back of the main blank occurs the following printed legend in red ink:

> A PRESCRIPTION WRITTEN ON THIS SIDE
> OF THE SHEET MUST NOT BE RENEWED
> UNDER ANY CIRCUMSTANCES WHATEVER,
> WITHOUT MY ORDER.
> ...., M.D.

These blanks are bound up in books of 100 each, with a flexible morocco cover, from which the book of stubs may be slipped and a fresh book inserted as required. The size is ample for all ordinary requirements, and permits of the book being carried in the breast-pocket.

Renewals. It would be advisable for physicians to always write the words "*Non Repetatur*," or some similar direction, on all prescriptions which should not be repeated without their sanction. By so doing they would doubtless cut off a good many renewal charges from the receipts of druggists who would fear the legal consequences of disobeying the mandate. This inconvenience to the drug-seller would be more than compensated for in the protection to the drug-taker, who too frequently carries in his pocket-book a stock of recipes for his various complaints; and in protection to the physician, who by giving up the dispensing of his own medicines has placed it in the power of the druggist to connive at a direct robbery of the just reward of professional skill and knowledge.

It is doubtless a fact familiar to every observer, that the old-time confidential relations between the professions of physician and pharmacist have almost passed into oblivion. In fact, the tendency of pharmacy now-a-days is towards the position of a mere money-making trade, instead of in the exalted direction of a profession. The indiscriminate renewing of prescriptions, the open sale of quack nostrums and homœopathic pellets, the readiness with which counter-prescribing is indulged in, the insinuations too frequently made over the drug-counter in reflection on physicians, and many other similar practices, have caused the non-combatant profession to regard the average druggist with suspicion. If physicians boldly took the dispensing of medicines more into their own hands many of these evils would soon eliminate themselves from the drug-stores. Right here, it may be said that there is nothing unprofessional or derogatory in the dispensing of his own medicines by the physician. In England it has been the universal practice for centuries in all places except the largest cities, and it has only been given up by a part of the medical profession as a matter of convenience, not as a right. The homœopaths fought for the reclamation of this practice as a right belonging to the medical profession, and succeeded in its legal establishment, but not from a worthy motive. They dispense their own medicines in order to

p the many frauds of which they are daily guilty, and to give them
er of administering full doses of powerful drugs in a form which
ently "homœopathic," with no tell-tale prescription on file in a
ore to give mute but dangerous evidence against their honesty. In
they administer several grains of Calomel or eighth-grain doses
phine, or correspondingly large quantities of active alkaloids,
ed with sugar of milk, or dissolved, as many of the latter may be,
ol. Chemistry, by isolating the active principles of plants, and
ng them to commerce in the form of soluble salts, has enabled the
path to practice this fraudulent method of dispensing drugs, which
ocent and ignorant patient, who believes in the power of the mini-
ose, supposes to be infinitesimal in amount. But the physician of
lar profession is too apt to think that if he adopts a practice which
ns have appropriated to themselves, he may be classed with them
professional competitors. Hence, many regular physicians are
ely afraid to use such drugs as Aconite, Belladonna, Gelsemium,
Rhus, etc., all of which are official, and most of which are older
omœopathy in medicine; and avoid pocket-cases, drachm-vials
turations, as badges of charlatanism. It is high time that we
our independence in all these matters, and made use freely of
eans which are recommended by our individual judgments as pro-
of the best results to our patients and to ourselves. With a small
f reliable fluid extracts, such as are manufactured by Parke, Davis
of Detroit, or Dr. Edward R. Squibb, of Brooklyn,—an equally
te supply of gelatin-coated pills and compressed tablets from the
uses, such as McKesson & Robbins, Schieffelin & Co., Warner &
yeth & Co., physicians could check-mate the unscrupulous prac-
many druggists to a great extent, save their patients many dollars,
in many a dollar for their own pockets, which under the present
goes to their enemies. The homœopaths understand the money
the argument well. When their patients' medicine is exhausted,
tor must be seen for a fresh supply, meaning of course another
tion about symptoms, a change perhaps from *Mercurius Dulcis*
curius Vivus, and another fee. The expense is nothing, sugar
being cheap, and there is no prescription in the patient's pocket-
o be renewed scores of times (paying toll however every time
ruggist), and finally to be copied by aunts, mothers and friends,
vereign remedy for a cough, or a really wonderful receipt in a
croup.

ng a Prescription means a combination of operations which
great care, undivided attention, and a special practical appren-
at the dispensing desk. In the following discussion of extempo-

raneous preparations such hints are incorporated as are particularly applicable to the compounding of each article under consideration; and they may be prefaced by a few general suggestions which will serve to point out the most approved method of dealing with this important part of the druggist's work.

The prescription should first be slowly read over in a critical spirit, but no word or action of unfavorable criticism should reach the ears or eyes of the messenger. To shrug the shoulders while scanning the items, to laugh or even smile at the phraseology, to question the person offering it as to whom it is for, or what complaint it is given for, are instances of such flagrant treason to the prescriber as would justify his kicking the offender with a copper-toed boot. The compounder has no business whatever with the propriety of the recipe for its purpose. It might have been given as a *placebo* for reasons eminently wise and judicious; or if not so constituted it has at least been ordered by one who is in possession of facts which the druggist knows nothing about, even if by education and experience he were competent to judge in the matter, which he seldom is. His criticism should be directed only to the dosage and the pharmaceutical compatibility of the ingredients. Even in the latter case he must remember that incompatibles are often prescribed with the view of forming another agent from the chemical reaction produced. If he thinks that there is any mistake, and the drugs ordered are in any degree poisonous, it is his duty to make an excuse for delay to the messenger and at once communicate with the physician. This course, in these days of telephones, is nearly always practicable.

After reading the prescription, it is well to number it and write the label. This gives time for the label to dry, and avoids the use of blotting paper, which often mars the writing and renders the directions all but illegible.

A clearly defined method should next be decided on by which to compound the prescription. Directions for such plans of procedure will be found in the succeeding pages under the titles of the various preparations. Next, the ingredients should be carefully weighed or measured out, each one being checked off so as to avoid the danger of its being duplicated. In many cases the excipient is not specified, its choice being left to the druggist; but in all such a note should be made on the prescription to show the article used, in order that in the event of a renewal there may be no difference perceptible. No alteration or addition should ever be made which would in any degree affect the medicinal action of the prescription, or interfere with the obvious intention of the prescriber.

The labelling of the package and the numbering and filing of the prescription are matters of mechanical detail which are best learned at the counter. Various devices for simplifying these operations are in vogue and may be seen in any well-appointed drug-store. Poisonous articles sold by the druggist should always be labelled "Poison," and the transaction entered in a book usually required by law to be kept for that purpose; but in the case of prescriptions the word "Poison" should not appear on the package or label unless so directed by the prescriber.

Stock Solutions of the salts most frequently prescribed are kept in many establishments for convenience in dispensing. Those most generally used are the following:

Alum,—℥ ijss in a quart of distilled water. Of this solution each fluidounce represents ʒ ss of the salt.

Potassium Bicarbonate,—℥ j in f℥ iv of distilled water; of which ℥ ss contains ʒ j of he salt.

Potassium Chlorate,—1 in 24 of distilled water, will not crystallize as the temperature changes.

Potassium Bromide,—1 in 3 of distilled water, makes a very convenient solution for dispensing purposes.

Chloral Hydrate,—1 in 1 of distilled water: of which each minim contains a grain of chloral.

Morphine Sulphate,—gr. xvj in ℥ j of distilled water, with a grain of Salicylic Acid or 3 drops of Carbolic Acid to prevent change. Of this solution, known as Magendie's, each minim contains gr. $\frac{1}{30}$ of the salt, and ♏x contain gr. $\frac{1}{3}$. A safer solution is the Liquor Morphiæ Sulphatis of the U. S. P., 1870, which had one grain of the salt in each fluidounce.

Carbolic Acid,—℥ j in f℥ iv of glycerin, makes a convenient solution which will mix with water in all proportions. ♏ivss represent gr. j of the acid.

Tannic Acid,—℥ j in f℥ iv of glycerin, dissolved by the aid of a gentle heat. ♏ivss represent gr. j of the acid.

The following rules for the pharmaceutical student are quoted from the *Chemist's and Druggist's Diary* for 1885. They are well worth remembering.

1. Read through a prescription, rapidly and in a manner suggesting no suspicion or doubt.
2. Write directions invariably before dispensing. Avoid thus the use of blotting-paper; a good dispenser uses almost none.
3. If a mixture contains readily soluble ingredients, never use a mortar.
4. Avoid effecting solution by heat, for fear of recrystallization.
5. With syrups and also ingredients not water, arrange in dispensing to rinse out the measure and leave it clean; a skilled dispenser shows very little traces of his work.
6. Carefully clean and put away weights and scales after each operation.
7. Hold the scales firmly by the left hand, never lift them high above the counter, and judge of the weight as much by the indicator as by the position of the scale.
8. Select glass pans for scales, preferably of heavy make, and discard flimsy brass material, which corrodes speedily and becomes inaccurate.
9. Learn to judge of the quantity to be weighed with tolerable accuracy; train the eye as well as the hand.
10. If in doubt, always begin with that about which you have no doubt.
11. Be rapid in manipulation. Finish wrapping, tying, or sealing quickly. Slow dispensing is bad dispensing, and arises either from deficient practice or want of knowledge.
12. Never, when in a shadow of doubt, hesitate to ask advice from a fear of compromising your own dignity.

INCOMPATIBILITY.

Incompatibility may be Chemical, Pharmaceutical or Therapeutical, according as the prescribed combination results in chemical decomposition, physical disassociation or antagonistic action. In the first case the incompatibility may be unintentional or intentional on the part of the prescriber, for in many cases the result of the chemical action affords the substance desired.

Instances of intentional incompatibility are the mixtures of Calomel and Corrosive Sublimate with Limewater, producing the Black and Yellow Oxides of Mercury respectively, and commonly known as "Black Wash" and "Yellow Wash." Such combinations should not be filtered (as a novice might suppose), but should be dispensed with a "Shake-label," that the precipitate may be uniformly distributed before using.

Chemical Incompatibility generally results from neglect on the part of the prescriber of the most common chemical reactions, such as—

1. Acids tend to combine with bases and to form salts.

2. Weak acids or bases are displaced from their combinations by stronger ones, so that salts in solution when brought together generally exchange their radicles, especially if by doing so an insoluble compound can be formed.

3. A salt in solution is easily decomposed by a strong alkali if the salt is one having a weak or volatile base.

4. A substance in solution may be decomposed by another without precipitation, the product being soluble in the solution.

5. Alkaloidal salts are precipitated from their solutions by the addition of fixed alkalies, their salts or salts which produce insoluble compounds. Oxides of the fixed alkalies decompose salts of the metals proper, and those of the alkaloids, precipitating their bases; but the base may be soluble in an excess of the alkali.

6. Tannic or Gallic Acids and vegetable substances containing them precipitate albumen, alkaloids and most of the metallic oxides, and form inky solutions when brought into contact with the persalts of Iron. Tannic Acid precipitates gelatin.

7. Glucosides are incompatible with free acids or Emulsin.

Examples of the neglect of these principles are seen in the prescribing of Quinine Sulphate in mixture with Potassium Acetate, resulting in a voluminous precipitate of Quinine Acetate which could not be poured from the bottle;—Vinegars or Syrups containing Acetic Acid (Syr. Allii, Syr. Scillæ) added to a solution of alkaline carbonates, causing decomposition of the latter with evolution of CO_2;—the addition of Liquor Potassæ to a solution of Ammonia-alum, setting free gaseous ammonia;—the mixing of Strychnine Sulphate and Potassium Bromide in solution, causing the decomposition of the alkaloid sulphate and precipitation of Strychnine;—preparations of Cinchona with salts of Iron, forming an inky tannate of iron; Elixir of Chloral with alkalies, causing the elimination of Chloroform and its subsequent evaporation, etc., etc.

The following table shows the most important instances of solutions

ich mutually precipitate each other, the letter P meaning "forms a
ecipitate with "—

TABLE OF SOME MUTUALLY PRECIPITANT SOLUTIONS.	Alkaloidal Solutions (generally).	Metallic Solutions (generally)	Lead Solutions.	Silver Solutions.	Calcic Solutions.	Magnesic Solutions.	Albuminous Solutions.	Gelatinous Solutions.
olutions of Alkalies,	P	P	P	P	P	P		
'annic Acid,	P	P	P	P	..	..	P	P
arbonic Acid and Sol. of Carbonates,	P	P	P	P	P	P		
ulphuric Acid and Sol. of Sulphates,	..	..	P	P	P			
'hosph. Acid and Sol. of Phosphates,	P	P	P	P	P	P		
oric Acid and Sol. of Borates,	P	P	P	P				
ydrochloric Acid and Sol. of Chlorides,	..	..	P	P				
ydrobromic Acid and Sol. of Bromides,	..	..	P	P				
ydriodic Acid and Sol. of Iodides,	P	..	P	P				
olutions of Sulphides,		P	P	P				
rsenical Solutions,		P	P	P				
lbumen,		P	P	P				

The following more or less insoluble salts will be formed whenever the
terials of which they are composed are brought together in solutions:
Hydrates, Carbonates, Phosphates, Borates, Arseniates and Tannates
most earthy and heavy metals and alkaloids, and the metallic Sulphides;
Sulphates of Calcium, and of Lead, and the subsalts of Mercury; the
lorides, Iodides, and Bromides of Bismuth, Silver, Lead, and subsalts
Mercury; the Iodides of Quinine, Morphine and most alkaloids.

nstances are—Limewater or Aromatic Spirit of Ammonia with Tincture of Chloride
ron, or solutions of Mercury salts, or neutral solutions of Quinine or Morphine salts.
mmonium, Potassium and Sodium carbonates or bi-carbonates with Limewater.
olutions of Magnesium Sulphate, Alum, Zinc Acetate or Sulphate with solutions of
of Iron, Manganese, Bismuth, Antimony, Lead, and of most alkaloids.
mmonium or Sodium Phosphates with solutions of Iron salts, with Limewater, solu-
of Magnesium Sulphate, of Alum, etc.
iquor Potassii Arsenitis with Limewater, with solutions of basic salts of Iron, and of
ral salts of Quinine and Morphine, etc.
olutions, decoctions, tinctures and extracts containing Tannic Acid with solutions of
of Iron, Mercury, Antimony, Lead (as also with solutions containing albuminous sub-
ces and Gelatin).
imewater with solutions of Quinine or Morphine Sulphates.
olutions of Lead Acetate with Zinc Sulphate or Alum.
odium Chloride with Silver Nitrate.
lorphine Hydrochlorate with Lead Acetate.
lkaline Iodides or Bromides with Bismuth Carbonate or Sub-nitrate, with Lead Ace-
, with Sub-chloride of Mercury, or with neutral solutions of Quinine, Morphine or
chnine salts.

Explosive Compounds result from the admixture of powerful oxid-
g agents with substances which are readily oxidizable. The most
portant members of these two classes are as follows:

Oxidizers.
Nitric Acid. Chromic Acid.
Free Hydrochloric Acid.
Nitro-hydrochloric Acid.
Potassium Chlorate.
Potassium Permanganate.

Oxidizable or Combustible.
Glycerin, Sugar, Alcohols.
Oils and Ethers.
Sulphur and Sulphides.
Dry Organic Substances.
Phosphorus.

EXPLOSIONS have resulted from mixing Fluid Extract of Uva Ursi with certain samp of Spirit of Nitre, Chromic Acid with *Glycerin*, Permanganate of Potassium with *Glycer* Nitric Acid with *Glycerin*, Nitrate of Silver with Creasote, Oxide of Silver in pill w Extract of Gentian, Potassium Chlorate with *Glycerin* and Tincture of the Chloride Iron. Chloride of Lime triturated with Sulphur in a mortar has exploded, so also Calcium or Sodium Hypophosphite when triturated alone. Tincture of Iodine with A monia forms the Iodide of Nitrogen, which is highly explosive, especially if triturated the presence of water. Catechu and Potassium Chlorate in a dentifrice have exploded the mouth from the friction produced by a dry tooth-brush.

Poisonous Compounds may be formed by the admixture of ma substances in solution, such as—

Potassium Chlorate with *Potassium Iodide*, in solution together do react at ordinary temperatures, but in the system they evolve a poison agent, probably the Iodate of Potassium.

Potassium Chlorate with *Syrup of Iodide of Iron*, liberates Iodine fr the Iodide in the warm stomach, causing severe gastric irritation, perh gastritis of dangerous degree.

Dilute Hydrocyanic Acid or *Potassium Cyanide*, with *Calomel*, fo the Bichloride and Bicyanide of Mercury, both virulent poisons ;—w metallic hydrates, carbonates, sub-nitrates or sub-chlorides, cyanides the metals are formed which are even more poisonous than the acid it in its usual diluted form.

Pharmaceutical Incompatibility differs from chemical incomp bility in the absence of chemical action, and is generally produced adding one substance to another which, through differences in solubi causes a precipitation of solid matter or a separation of part of the liq The constituents separated may be active and hence important, or and therefore unimportant.

Instances of this are—the addition of an acid to a Quinine and Liquorice mixture, ing in precipitation of the Glycyrrhizin (relied on to cover the taste of the Quinine) acid;—or the use of Quinine, Tincture of Ferric Chloride and Liquorice together the prescribing of solutions of Chloral and Potassium Bromide with an alcoholic pr tion, the Chloral separating to the top as an alcoholate, and therefore dangerou excess for the first few doses;—or the neglect to prescribe Acacia or some other sifier in mixtures of an alcoholic fluid extract of a resinous body with an aqueous ration, which would result in the separation of the resin to the surface and an ov with the first teaspoonful.

When the fluid extracts are diluted with liquids differing in compo from those used in the fluid extracts, the gum, albumen, resin and age are often separated. In such a case as Fluid Extract of Ca

the active resin would be thrown out of solution, and floating on
ght cause serious symptoms; but in many other instances the pre-
e would be inert and filtration would be in order. Water is the
t for albuminous, gelatinous, gummy, and saccharine bodies and for
number of inorganic salts; while Alcohol is the solvent for vola-
s and resins, gum-resins, resinoids, balsams, and all drugs contain-
ese as their active principles. The solvent power of either Alcohol
ter for their particular substances decreases in proportion to the
t of the other added.

Instances of Pharmaceutical Incompatibility.

ous tinctures or fluid extracts with aqueous solutions.
ture of Guaiac with Spirit of Nitric Ether.
pound Infusion of Gentian with Infusion of Wild Cherry.
pound Infusion of Cinchona with Compound Infusion of Gentian.
ntial oils with aqueous liquids in quantities exceeding 1 drop to ℥j.
d oils and Copaiba with aqueous liquids (except excipients).
tures made with Alcohol with those made with Diluted Alcohol.
holic tinctures and fluid extracts with aqueous preparations.
t of Nitric Ether with strong mucilages.
ions generally with metallic salts.

erapeutical Incompatibility arises when two agents are adminis-
together which oppose each other in their action on the human
,—as for instance Belladonna in any form with Physostigma. But
ny cases physiological antagonists are designedly prescribed together,
a guard against the action of the other, as in the hypodermic
istration of Morphine guarded by Atropine. The antagonists to
f the active medicinal agents may be found in the section on
a Medica under their various titles; but they may be well summar-
s to the most important ones in the following list.

PHYSIOLOGICAL ANTAGONISTS.

ne,—Atropine, Digitalin, Strychnine.
,—Strychnine.
ium Chloride,—Chloral-hydrate.
e,—*Aconitine, *Bromal-hydrate, Chloral-hydrate, Hydrocyanic Acid, Jaborandi,
arine, *Morphine, Physostigmine, Phytolacca, Pilocarpine, Quinine. [Those
ed * will not prevent death from a lethal dose of Atropine, though the latter will
nt death from a lethal dose of either of them.]
e,—Sodium Sulphate, Potassium salts.
l-hydrate,—Atropine.
e,—Chloral-hydrate.
rine,—Chloral-hydrate.
c Acid,—Chloral-hydrate.
l-hydrate,—Ammonium Chloride, Atropine, Brucine, Calabarine, Carbolic Acid,
ine, Physostigma, Picrotoxine, Strychnine, Thebaine.
form,—Amyl Nitrite.
e,—Morphine.
e,—Chloral-hydrate.
lin,—Aconitine, Muscarine, Saponin.
ium,—Opium, Atropine.

Morphine,—Atropine, Caffeine, Chloroform, Cocaine, Daturine, Hyoscyamine, Nicotin Physostigma.
Muscarine,—Atropine.
Opium,—Atropine, Gelsemium, Veratrum Viride.
Physostigma,—Atropine, Chloral, Morphine.
Saponin,—Digitalin.
Strychnine,—Alcohol, Chloral, Hydrocyanic Acid, Nicotine, Nitrite of Amyl.
Thebaine,—Chloral-hydrate.

The Dangers of Incompatibility may in a great measure avoided by the use of the utmost simplicity in prescribing. The subje can only be glanced at within these pages, but the following simple ru may help the burdened memory of the student and the practitioner.

(1). Never use more than one remedy at a time, if one will serve t purpose.

(2). Never use *Strong Mineral Acids* with other agents, unless y know exactly what reaction will ensue. They decompose salts of weaker acids, and form ethers when combined with alcohol. Never co bine *free acids* with hydrates or carbonates.

(3). Select the simplest solvent, diluent or excipient you know of, membering that the solvent power of alcohol and of water for th respective substances decreases in proportion to the quantity of the ot added.

(4). Generally do not combine two or more soluble salts; for su salts in solution, when brought together, usually exchange their radicl thereby forming an insoluble compound.

The following more or less insoluble salts will be formed whenever the materials which they are composed are brought together in solutions: the Hydrates, Carbonat Phosphates, Borates, Arseniates and Tannates of most earthy and heavy metals and al loids, and the metallic Sulphides; the Sulphates of Calcium, of Lead, and the subsalts Mercury; the Chlorides, Iodides, and Bromides of Bismuth, Silver, Lead, and Mercur the Iodides of Quinine, Morphine and most alkaloids.

(5). Never order a drug in combination with any of its Tests or An dotes.

(6). Never prescribe a *Glucoside*, (as Santonin, Colocynthin, etc.), combination with *free acids* or with a substance containing *Emulsin*, these agents will decompose it.

(7). *Aconite* should be ordered in water alone, *Mercuric Chloride* itself in water or in simple syrup. The latter drug is incompatible w almost everything, even the Compound Syrup of Sarsaparilla being s to decompose it.

(8). *Iodide of Potassium* decomposes most of the metallic salts, an one of the drugs which are best administered alone.

(9). The following named substances are incompatible with so ma others that it is best to always prescribe them alone; they are best giv in simple solution :—

Dilute Hydrocyanic Acid.
Dilute Nitro-hydrochloric Acid.
Sulphuric Acid.
Mercuric Chloride (Corr. Sub.).
Iodine and Iodides.
Syrup of the Iodide of Iron.
Potassium Permanganate.
Potassium Acetate.
Potassium Bromide.
Tartar Emetic.
Tincture of Guaiac.
Morphine Acetate.
Morphine Hydrochlorate.
Quinine Sulphate.
Liquor Calcis.
Liquor Potassæ.
Liquor Potassii Arsenitis.
Liquor Ferri Nitratis.
Tinct. Ferri Chloridi.
Zinc Acetate.
Citrate of Iron and Quinine.
Free Chlorine in Solution.
Tannic and Gallic Acids.

(10). *Silver Nitrate* and the *Acetate* and *Sub-acetate of Lead*, though ncompatible with almost everything, may be combined with *Opium*, the atter forming with Opium a compound, which, though insoluble, is therapeutically active as an astringent and anodyne lotion. *Silver Nitrate* with *Creasote* forms an explosive compound.

(11). *Tannic and Gallic Acids*, and substances containing them (as the Astringent Bitters), precipitate albumen, alkaloids and most soluble metallic salts. They may be prescribed with the proto-salts of Iron, but not with its per-salts. *Calumba* is the best vegetable tonic to use with ferric salts, as it contains neither tannic nor gallic acids. *Tannic Acid* precipitates gelatin.

(12). *Iodine* and the soluble *Iodides* are incompatible with the alkaloids and substances containing them, also with most metallic salts.

(13). *Alkalies* neutralize free acids, and precipitate the alkaloids and the soluble non-alkaline metallic salts. *Oxides of the Alkalies* decompose salts of the metals proper, and salts of the alkaloids, precipitating their bases; but the base may be soluble in an excess of the alkali.

(14). *Resinous Tinctures or Fluid Extracts*, (*e. g.*, Tinct. Cannabis Indicæ) when combined with aqueous solutions, should always have Acacia or some other emulsifying agent added, to prevent the separation of the resin, which otherwise will be deposited on the sides of the bottle or will float on top of the mixture.

(15). Tincture of Digitalis should not be mixed with aqueous or syrupy solutions, for in such cases a decomposition of the active principles may occur, forming new and poisonous ones.

LIQUID EXTEMPORANEOUS PREPARATIONS.

Mixtures (Misturæ),—in official pharmacy are aqueous preparations containing some *insoluble* ingredients held in suspension by an appropriate vehicle. In extemporaneous pharmacy, however, the term *Mixture* is applied to every fluid compound intended for internal use, except a few which bear distinctive titles, such as Emulsions, Draughts, Enemas, Elixirs and Drinks. The simplest form of mixture in this extended sense is that in which two or more liquids are mixed together; but a great variety of substances may be prescribed in this form, chief among which are most of the soluble salts, light insoluble powders, salts which may be diffused by agitation, extracts, gum-resins, and the fixed essential oils. They are generally ordered in 2, 3, 4, 6, 8, 10 and 12-ounce vials.

The substances suitable to the mixture-form, properly so called, are those which, though more or less insoluble in water, will mix with it by agitation, trituration, etc. Those most frequently ordered are as follows:—

Diffusion by Agitation :—

Calcii Phosphas Præcip.
Cinchonæ Pulvis.
Ipecancuanhæ Pulvis.
Magnesia.
Quininæ Sulphas.
Sulphur Præcipitatum.

Suspendible by Viscid Excipients :—

Essential Oils.
Oleum Amygdalæ.
Oleum Morrhuæ.
Oleum Olivæ.
Oleum Ricini.
Copaiba.
Ferri Carbonnas Saccharatus.

Miscible only by Trituration :—

Ammoniacum.
Asafœtida.
Confectio Rosæ.
Confectio Sennæ.
Extractum Aconiti.
Ext. Belladonnæ.
Ext. Conii.
Ext. Hyoscyami.
Ext. Stramonii.
Ext. Glycyrrhizæ.
Ext. Krameriæ.
Ext. Taraxaci.
Guaiacum.
Scammonium.
Myrrha.

Best suspended by the aid of a fixed oil or yolk of egg :—

Ext. Cannabis Indicæ.
Camphora.
Oleum Terebinthinæ.
Chloroformum.

Solutions intended for internal administration are classed as Mixtures in extemporaneous pharmacy, for the reason stated above. The following list of acids and salts comprises most of the solids which are best adapted for use in liquid form, by reason of their solubility in water.

Acidum Citricum.
Acidum Tannicum.
Acidum Tartaricum.
Alumen.
Ammonii Chloridum.
Antimonii et Potassii Tartras.
Barii Chloridum.
Calcii Chloridum.
Calcii Hypophosphis.
Ferri Pyrophosphas.
Ferri Sulphas.
Ferri et Ammonii Citras.
Ferri et Potassii Tartras.
Ferri et Quininæ Citras.
Magnesii Sulphas.
Mangani Sulphas.
Potassii Acetas.
Potassii Bicarbonas.
Potassii Carbonas.
Potassii Citras.
Potassii Chloras.
Potassii Hypophosphis.
Potassii Tartras.
Potassii et Sodii Tartras.
Potassii Bromidum.
Potassii Iodidum.
Morphinæ Acetas.
Morphinæ Hydrochloras.
Morphinæ Sulphas.
Sodii Bicarbonas.
Sodii Boras.
Sodii Carbonas.
Sodii Chloridum.
Sodii Hypophosphis.
Sodii Phosphas.
Sodii Sulphas.

A few require the use of viscid substances as vehicles or correctives. They are as follows:—

nii Carbonas.
i Acetas.
Potassa.
Potassii Cyanidum.
Hydrargyri Chloridum Corrosivum.

alts are best ordered by prescribing such agents as will when in
gether react upon each other and produce the desired salt. In-
his may be found in the pharmacopœial processes for most of
Liquores; the salts so produced being the following:—

nii Acetas.
sii Citras.
ii Citras.
itras.
cetas.
hloridum.
rgyri Nitras.
Ferri Nitras.
Ferri Phosphas.
Potassii Arsenis.
Potassii Hydras.
Sodii Hydras.
Soda Chlorata.
Zinci Chloridum.
Arsenii et Hydrargyri Iodidum.

other substances require the addition of other agents in order
gible solutions. Such are the following:—

ulphas,—requires acidulated water for its solution, the acid used being gen-
ric diluted, or the Aromatic Sulphuric. This method of prescribing this
its bitter taste to the utmost, and is often avoided by ordering the drug to be
a viscid liquid, such as Pulv. Acaciæ in Syrup of Ginger. In such a case
ispenser anxious to show his smartness may add some dilute Sulphuric Acid
e Quinine and thus defeat the object of the prescriber.
Quinine may be prescribed with Aromatic Spirit of Ammonia, Spirit of
, Tinctures or other alcoholic preparations together with Glycerin or Syrup
In such cases the salt should be first dissolved in the alcoholic portion of the
then the glycerin or syrup, and finally the aqueous portions should be added
t may also be ordered with dilute Sulphuric Acid and some vegetable infusion
nnin, in which case a precipitate of Tannate of Quinine will be produced.
e should not be filtered, but should be dispensed with a "Shake-label."
Cinchonine Sulphate and *Quinidine Sulphate*,—also require the addition of
acid for their solution in aqueous mixtures.
quires the addition of Iodide of Potassium for its solution in a convenient
ater, as in the case of the official Liquor Iodi Compositus.
of Mercury,—requires the addition of Iodide of Potassium or Mercuric
ts aqueous solution.
tartras, Cream of Tartar, —requires the addition of Borax or Boric Acid for
water.
id,—requires the addition of Borax to aid its solubility in water, an equal
tter making it 5 times more soluble than when alone.
more soluble in sweetened water than in plain water, the sugar aiding its

TS are substances which give form and consistence to prescrip-
serve as vehicles for the exhibition of the other ingredients.
e excipients are *diluents*, or agents which effect the dilution
of the active ingredients; while others act in the double capa-
ents and *flavoring agents*. The excipients most generally used
may be tabulated as follows, viz.:—

Diluents.	*True Excipients.*
(Aqua).	Acacia (Pulv).
ated Waters (Aquæ).	Tragacanth (Pulv).

Diluents.

Syrups.
Mel Rosæ.
Elixir Aurantii.

True Excipients.

Sugars.
Confections.
Some Extracts.
Yolk of Egg (Vitellus).

Flavoring Agents.

Oleum Cari.
Ol. Caryophylli.
Ol. Cinnamomi.
Ol. Gaultheriæ.
Ol. Sassafras.
Ol. Amygdalæ Amaræ.
Tinctura Tolutana.
Tinct. Zingiberis.
Tinct. Cinnamomi.
Tinct. Cardamomi.
Tinct. Cardamomi Comp.
Tinct. Gentianæ Comp.
Tinct. Aurantii Dulcis.
Tinct. Vanillæ.
Spiritus Anisi.
Spiritus Limonis.
Spiritus Myristicæ.
Spiritus Menthæ Piperitæ.
Spiritus Menthæ Viridis.
Spiritus Lavandulæ.
Syrupus Limonis.
Syrupus Tolutanus.
Syrupus Zingiberis.

Compounding the Mixture is a matter of no slight importance, and one which is best learned at the dispensing counter, though a few directions may not be out of place. In the case of the simplest form of mixture, where two or more fluid preparations are prescribed together, the only operations required are the measuring of the several ingredients and pouring them into the designed vial. In doing this the compounder should pursue a regular and definite order of procedure. Taking in his left hand a graduate of sufficient capacity to hold the whole quantity prescribed, he should walk along the shelves, and with the right hand pour from the stock-bottles the requisite quantity of each ingredient in the order in which they are entered on the prescription. A skillful clerk will hold the graduate between the thumb and first finger, the prescription between the second and third fingers, and the stopper of the stock-bottle between the little finger and the hand, leaving his right hand free for the manipulation of the bottles containing the ingredients.

When an actively poisonous agent is ordered it should always be the last thing put into the mixture. Attention to this rule will prevent the danger of the toxic substance being put in twice.

The order in which the ingredients are put together is not of so much importance in compounding a simple mixture as in the case of an emulsion, and the order of the prescription can usually be followed, with the exception noted in the preceding paragraph. Still, when several alcoholic preparations, syrups and waters are ordered together, it is good practice to first mix the alcoholic fluids, then to add the syrups and finally the water, so as to avoid the precipitation of resinous principles which would occur if the alcoholic solutions were added to the water. Distilled water should always be used, in order to insure uniformity in taste and appearance, and also as a matter of purity and cleanliness. All mixtures should be well shaken before being labelled.

which are comparatively insoluble or only slowly soluble require ıbed up in a mortar with one or more of the fluid ingredients. tars are much employed for this purpose, and many compounders ıe ingredients in such a mortar before transferring them to their getable powders (as Rhubarb, Ipecac., etc.), or finely pulverized substances, are often ordered in intimate mixture with water, with mucilage or syrup. In such cases the mixture should be a porcelain or wedgewood mortar, enough mucilage or syrup led at first to make a thick paste, and after this is rubbed smooth may be gradually added during the continued process of mixing. ess will answer for all inorganic substances in powder, except , which is best mixed by being thrown on the surface of the d after it has sunk to the bottom as a uniform sediment the other ts may be added, and the whole well shaken. Froth upon the the liquid, which often arises after agitation, and may prevent ıg of the bottle, will quickly subside on the addition of a few ılcohol.

lowing are samples of prescriptions for medicines to be admin- mixture form :—

ıth Mixture for Children.
hi Subcarbonatis, . ʒ ij.
Acaciæ,
Cinnamomi, āā, ℥ ij.
Signa,—A teaspoonful every
leraic diarrhœa.

Quinine Mixture for Children.
℞. Quininæ Sulphatis (pulv.), ʒ ss.
Pulveris Acaciæ, ... ℥ ss.
Syrupi Zingiberis, . . . ℥ iv.
Fiat mistura. Signa.—A teaspoonful
thrice daily.

sions (Emulsiones),—are mixtures containing an oil or a resin- ınce in a state of minute subdivision, and suspended in water by some viscid excipient, as gum, soap, alkali, or yolk of egg.

ᴀʟ Eᴍᴜʟsɪᴏɴs comprise two classes of substances,—(1) those which exist ready formed in nature, as milk, yolk of egg, the ces of plants, etc. ; and (2) the mixtures formed by rubbing up ıs (as Ammoniacum, Myrrh, Asafetida) with water. Each of substances contains, together with its resin, enough gum to make emulsion when triturated with water. The manufactured emul- simply imitations of the natural ones, sufficient gum being added of a resinous substance to cause its suspension in the aqueous

ification consists in the division of the oily or resinous substance minute globules, and surrounding each globule with a thin envel- e excipient. If properly done the globules will remain mechan- ended in the water, without any tendency towards recombination. he best illustration of a natural emulsion, its butter existing in ous portion as very minute globules, each surrounded by a thin film of casein. Yolk of Egg is a dense emulsion, consisting of oil suspended in water by means of albumen.

THE EXCIPIENTS which may be used for emulsification are the following, arranged in the order of their most frequent employment, viz. :—

Mucilage of Acacia,—used for oils and resins. Powdered Acacia is even better, being made into a mucilage by the process of emulsification; such a mucilage having the advantage of being perfectly fresh when incorporated with the other ingredients. To give uniformly good results the following proportions in parts by weight should be used, viz. :

	Gum Acacia.	Water.
1 part of Fixed Oils or Copaiba requires, ...	½	¾
1 " " Balsam of Peru "	2	1½
1 " " Oil of Turpentine, "	1	1

Mucilage of Tragacanth.—may also be used for oils and resins, but it has not proved so satisfactory as the preceding. The same may be said of powdered Tragacanth.

Vitellus, Yolk of Egg,—is an excellent agent for emulsifying oils, but mixtures made with it must be used within a few days, as they will not keep long. One yolk will emulsionize an ounce of fixed oil, and is about equal to half an ounce of Acacia. It is best suited to emulsions of cod-liver oil intended for immediate administration. The official Mistura Chloroformi is an emulsion made with yolk of egg. *Glyceritum Vitelli* or *Glyconin* is an official preparation consisting of glycerin and yolk of egg. (See *ante*, page 400.) One ounce of it will emulsify three ounces of fixed oil.

Liquor Potassæ,—may be used for oils, the resulting compound being however a soap rather than an emulsion. Copaiba is usually emulsified by using both a gum and an alkali; a similar process being employed for many of the fixed oils.

Tincture of Senega,—will emulsify fats and oils very efficiently, and even in very small quantities, ♏x emulsifying an ounce of fixed oil.

Tincture of Quillaia (Soap-bark(,—is a good emulsifier for oils, and is much used in Europe for this purpose.

Milk,—is used to emulsify Scammony in the Mistura Scammonii, which is official in the British Pharmacopœia.

Syrups, *Confections* and *Extracts*,—may be used in making emulsions, but are rarely so employed.

Soap,—is occasionally used for emulsifying Oil of Turpentine.

THE METHOD of preparing an emulsion which experience has shown to be the best, is as follows:—Add the oil, resin, etc., to a proper quantity of the excipient, and mix both thoroughly in a wedgewood mortar. Then add enough water to equal one-half the weight of the previous mixture, and triturate the whole rapidly and unceasingly until the emulsion is homogeneous and of a whitish color. Next, add the remainder of the water slowly, with continual stirring; finally incorporating the other ingredients, if any.

Emulsions are sometimes flavored and at the same time colored, with such a preparation as the Compound Tincture of Cardamom; but they present a better appearance when perfectly white. Alcoholic preparations should not be added in large quantity to emulsions made with Acacia or Yolk of Egg, as alcohol will precipitate the emulsifying agent. Volatile Oils require admixture with a fixed oil before being made into an emulsion. Soluble salts should never be prescribed with emulsions of oils. Acids are incompatible with mixtures which have been emulsified by an alkali. Mucilage used for emulsions should always be freshly prepared.

The following examples of prescriptions for emulsions will represent those generally met with:—

Cod-Liver Oil Emulsion.

℞. Olei Morrhuæ, ... ℥ij.
Vini Albi, ... ℥iss.
Ac. Phos. Dil., ... ʒiij.
Syrupi, ... ʒv.
Vitellum, ... j.
Aq. Amygd. Amar. *ad.*, . . ℥viij.
Misce, et fiat emulsio.
Sig.—Tablespoonful doses.

Alkaline Emulsion of Copaiba.

℞. Copaibæ,
Liq. Potassæ, ... āā ʒij.
Misce, et adde—
Pulv. Acaciæ,
Pulv. Sacchari, ... āā ʒij.
Aq. Menth. Viridis, *ad*, ... ℥iv.
Misce, et fiat emulsio.
Sig.—Tablespoonful doses.

Elixirs (Elixiria),—are mixtures containing alcohol, water and sugar, with certain medicinally active ingredients, and supposed to be so prepared as to be particularly palatable, which is seldom true. There is one official elixir, *Elixir Aurantii* (see *ante*, page 122), which may be used as a basis for the extemporaneous prescribing of these preparations. The manufacturers have put on the market a great variety of elixirs, and most druggists keep a stock of them on hand prepared in the shop; but they may be ordered by prescription just as any other mixture would be. The substances generally used in this form are as follows:—

Arsenic.
Bismuth.
Bromide of Ammonium.
Bromide of Lithium.
Bromide of Potassium.
Calisaya Bark.
Chloral Hydrate.
Coca.
Gentian.
Guarana.
Iron, Tincture of the Chloride.
Iron, Phosphate.
Iron, Pyrophosphate.
Liquorice.
Pepsin.
Quinine.
Strychnine.
Taraxacum.
Valerianate of Ammonium.

Many of these agents are combined with each other, as in the Elixir of Bismuth and Strychnine; Elixir of Calisaya, Iron and Strychnine; Elixir of Gentian with Tincture of Chloride of Iron; Elixir of Iron, Quinine and Strychnine, etc., etc.

A Draught (Haustus),—is an extemporaneous mixture consisting of a single dose, and usually ordered in a vial containing from one to two fluidounces.

Effervescing Draught is one of the best known. It is prepared by neutralizing a watery solution of Potassium Bicarbonate with Lemon-juice or Citric Acid, and may be drank during effervescence. When the CO_2 has escaped it is a solution of Potassium Citrate in water, and corresponds to the official Mistura Potassii Citratis, or Neutral Mixture. (See *ante*, page 323.)

Black Draught is another well-known preparation of this class. It is official as Infusum Sennæ Compositum. (See *ante*, page 364.)

A Drink (Potus),—is a solution or a mixture intended to be used *ad libitum*, and generally consists of a Potassium or Sodium salt, or a mineral acid, in dilute solution, sweetened and flavored.

The "Imperial Drink" is made after the following formula: ℞. Potassii Bita ʒij; Olei Limonis, ♏v; Aquæ Bullientis, q. s. *ad* ℥xx. M. Fiat potus. Sig. as a drink.

A Gargle (Gargarysma),—is a mixture or solution for applicati the pharynx or the mouth (mouth-wash). It should never contain active drug, which would produce dangerous symptoms if swallo nor any agent which would injure the teeth or the mucous memb Gargles are ordered and compounded in the same manner as mixt They usually contain astringent or disinfecting salts (Alum, Borax, phate of Zinc, Chlorate of Potassium), with a vegetable astringent often Honey. The following formulæ will illustrate prescriptions o class.

℞. Tr. Guaiaci Ammoniatæ,
Tr. Cinchonæ Comp., āā . ʒij.
Mellis Despumat., ... ʒvj.
Bene simul agita, et adde—
Potassii Chloratis, ... gr. lxxx.
Aquæ, q. s. *ad* . . . . . ℥iv.
Fiat gargarysma. Sig.—Gargle.

℞. Aluminis, ... ʒi
Granati Corticis, ... ʒi
Petal. Rosæ Rubr., . . . ʒj.
Mellis Despumat., ... ℥j.
Aquæ Bullientis, ... ℥v
M. Sig.—Gargle.
(*Godda*

A Lotion (Lotio) or **Wash**,—is a solution or mixture of medi agents, intended for external application; and usually consists of soluble, astringent salt, dissolved in water, with perhaps some glyceri alcohol. A *Fomentation* (Fotus) is a similar preparation used hot *Collyrium* is an eye-wash, and generally contains a soluble astringen dissolved in rose-water or distilled water, in the proportion of gr. j– the ℥. The only official preparation suitable for a lotion is the Li Plumbi Subacetatis Dilutus, or Lead-water. A well-known anodyn frigerant and astringent lotion is that represented by the first two o following prescriptions.

Lead-water and Laudanum.

℞. Liq. Plumbi Subacetatis, . ʒj.
Tinct. Opii, ... ℥j.
Aquæ, q. s. *ad* . . . . . . ℥viij.
M. Fiat lotio. Sig.—Lotion.
Gross.

Collyrium.

℞. Sodii Boratis, ... gr. x.
Aquæ Camphoræ, ... ʒij.
Mucil. Cydonii,
Aquæ Destil., ... āā ℥ss.
M. Fiat collyrium. Sig.—Eye-water; a few drops to be put into the eye three or four times daily.

Lead and Opium Wash.

℞. Liq. Plumbi Subacetatis,
Tinct. Opii, ... āā ℥j.
Aquæ, q. s. *ad* . . . . . . ℥v
M. Fiat lotio. Sig.—Lotion.
Stur

Collyrium of Four Sulphates.

℞. Zinci Sulphatis,
Ferri Sulphatis,
Cupri Sulphatis,
Aluminis, ... āā gr.
Aquæ Destillatæ, ... ℥j.
M. Fiat collyrium. Sig.—For us brush to palpebral conjunctivæ, and washed off with clean water.

Liniments (Linimenta),—are mixtures intended for external ap tion to the skin with friction. The official liniments are solutions of various substances in oily liquids or in alcoholic liquids containing fatty oils, and are enumerated on page 427. Extemporaneous liniments may correspond to the official ones or they may be simple mixtures of fluids without either fat or soap. A prescription for each kind is appended. The official Linimentum Saponis (Soap Liniment) is a good basis for extemporaneous preparations of this class.

Compound Chloroform Liniment.

℞. Extracti Belladon. Fl., . . ℥ ss.
Extracti Aconiti Fl.,
Chloroformi Venalis, . . āā ʒ ij.
Spiritus Camphoræ, . . . ℥ j
Alcoholis Diluti, *ad* . . . ℥ viij.
M. Fiat linimentum.
Sig.—Poison. To be rubbed on the painful part.

Anodyne Liniment.

℞. Tinct. Aconiti, ... ʒ ij.
Tinct. Opii, ... ℥ iv.
Tinct. Arnicæ, ... ʒ j.
Chloroformi, ... ʒ ij.
Linim. Saponis, *ad* . . . ℥ iv.
M. Fiat linimentum.
Sig.—Poison. Liniment.

Stokes' Liniment.

℞. Olei Terebinth., ... ℥ iij.
Acidi Acetici, ... ℥ ss.
Olei Limonis, ... ʒ j.
Vitellum, ... j.
Aquæ Rosæ, ... ℥ iij.
M. Fiat linimentum.
Sig.—Liniment.

Army Medical Wagon Liniment.

℞. Liq. Ammoniæ,
Ol. Terebinthinæ,
Ol. Olivæ,
āā, partes æquales.
M. Fiat linimentum.
Sig.—Liniment.

An *Embrocation* is a similar preparation, but of thinner consistence. The term is almost obsolete.

Injections (Injectiones),—are liquid preparations intended for introduction into the cavities of the body by means of a syringe. When thrown into the rectum they are termed *Enemas* (Enemata), or *Clysters*, and are usually prepared at the bedside. Enemata may be demulcent, laxative, nutritive, stimulant, or vermifuge in character; and always have warm or tepid water as their diluent, with which are incorporated such medicaments as may be desired. They may consist simply of water to act as a wash for the cleansing of the bowel. Injections are termed *vaginal, urethral, vesical, nasal, hypodermic,* etc., according to the locality in which they are employed. A special form of syringe is employed in each case, the discussion of which belongs rather to the domain of surgery than that of medicine. Those used for the nasal cavities are often arranged with small holes or an atomizing attachment, so as to deliver the injection in the form of a fine spray. A *Collunarium* is a nasal douche or wash. In the Appendix will be found a list of formulæ for hypodermic injections; a few prescriptions for other forms are appended below.

Enema for Stricture of the Rectum.

℞. Bismuthi Subcarb., . . . ℥j.
Extracti Opii Aquosi, . . gr. ij.
Glycerini, Aquæ, . . . aa ℥ij.
M. Fiat enema. Sig.—Two tablespoonsful to be injected thrice weekly.

Demulcent Enema.

℞. Tincturæ Opii, ... ♏xx.
Decocti Amyli, ... ℥iv–vj.
M. Fiat enema.

Vermifuge Enema.

℞. Extr. Quassiæ Fl., ... ℥jss.
Aquæ, ... ℥ijss.
M. Sig.—A tablespoonful with an equal quantity of warm water, as an enema, to be retained as long as possible.

Nasal Injection (Dobell's).

℞. Ac. Carbolici, ... ʒjss.
Sodii Bicarb.,
Sodii Boratis . . . . . aa ʒiv.
Glycerini, ... ℥xivss.
Aquæ, q. s. *ad* . . . . . ℥viij.
M. Sig.—A tablespoonful diluted with an equal quantity of tepid water, to be used thrice daily with a nasal sprayer.

Injection for Gonorrhœa.

(Injection Brou.)

℞. Zinci Sulphatis, ... gr. viij.
Plumbi Acetatis, ... gr. xv.
Tincturæ Opii, ... ℥ij.
Tinct. Catechu, ... ℥j.
Aquæ Rosæ, q. s. *ad* . . . ℥vj.
M. Fiat injectio. Sig.—Use with a urethral syringe.

Injection for Chronic Urethritis.

℞. Hydrarg. Chl. Corrosivi, . gr. ¼.
Zinci Choridi, ... gr. ss.
Aquæ Destillatæ . . . ℥viij.
M. Sig.—A teaspoonful to be injected well down into the urethra thrice daily.

Vaginal Injections for Leucorrhœa.

℞. Aluminis, ... ʒj.
Zinci Sulphatis, ... ʒss.
Sodii Boratis, ... gr. iv.
M. Sig.—Dissolve in half-a-pint of warm water, and use with a vaginal syringe.

℞. Acidi Tannici, ... ℥j.
Glycerini, ... ℥iv.
M. Sig.—One-half with an equal quantity of water to be injected twice daily.

Baths (Balnea), are often medicated, and then become medicinal preparations. The ingredients only are ordered in a prescription, as per the following examples, each of which is intended for a bath of 25 to 30 gallons :

Balneum Acidi Nitrohydrochlorici.

℞. Acidi Nitrici,
Acidi Hydrochlorici, . . aa ℥j.
M. Sig.—Use with 30 gallons of hot water, as a bath.

Balneum Sulphuris Compositum.

℞. Sulphuris Præcip., . . . ℥ij.
Sodii Hyposulphitis, . . ℥j.
Acidi Sulphurici Dil., . ℥ss.
Aquæ, ... Oj.
M. Sig.—For a 30-gallon bath.

SOLID EXTEMPORANEOUS PREPARATIONS.

Pills (Pilulæ),—are described on page 430, where also the official pills are enumerated. They constitute a form of medicine very much used in extemporaneous pharmacy, and one with the preparation of which the compounder should be perfectly familiar, for it will constitute fully one-third of his work at the dispensing counter. Pills should not exceed 5 grains in weight, unless the ingredients are very heavy, as Bismuth, Calomel, Hydrargyrum cum Creta, etc., of which 6, 8 or 10 grains may be made into a pill which may be readily swallowed.

A *Bolus* is a similar mass, but larger than a pill, while the names *Granule* and *Parvule* are given to masses smaller than the average pill.

The Process of Pill-making is briefly as follows: The ingredients ordered in the prescription are separately weighed out in the order of their bulk, commencing with that one of which the smallest quantity is to be used. If any require pulverization they should first be placed in the mortar, and reduced to powder; then the other dry ingredients, next the soft extracts and the excipient selected, and the whole is worked up into a mass, the *Pill-mass*, by the aid of the mortar and pestle. The perfect pill-mass should be uniform throughout, should not show any particles of any one ingredient, should have such a consistence that the pills made from it will retain their shape, should not be too hard, nor too dry, nor should it stick to the fingers. The mortar should be large and shallow, of unpolished wedgewood ware; having a thick, smooth and well-formed bottom, and a pestle which fits it. The operation of working up the mass is one of kneading it between the end of the pestle and the side of the mortar, and if proper ingredients and excipient are used, and if the work is well done, the mass will eventually loosen itself from both mortar and pestle. If it does not do so it should be removed with a spatula when sufficiently worked, and may then be kneaded for a few minutes between the fingers. It should then be placed upon the tile or slab previously dusted with a little Lycopodium or Starch in fine powder, and rolled into a long cylinder by the aid of a broad-bladed spatula, until the mass is of a length corresponding to the divisions on the tile-scale which represent the number of pills to be made. The mass should then be placed along the scale, and a cut made through it with the spatula at each division of the scale, the pieces being at once rounded separately into pills by the thumb and two fingers of each hand, A pill-machine is often employed, consisting of two metal plates having semicylindrical grooves on one side, and set into wooden boards, the whole forming a convenient apparatus for rolling the mass and then cutting it into the required number of pills by one movement. The pills are then left to dry upon the slab while the label is being written, after which they are placed in a pill-box, or in a wide-mouthed bottle if they contain volatile ingredients, and surrounded by a *conspergative* powder (Lycopodium, powdered Chalk, dusted Talc), to prevent their adhering together or losing their shape.

Excipients used in pill-making are seldom mentioned in the prescription, but are usually left to the choice of the compounder. Some substances need no excipient, but may be made at once into pills; such being the softer Extracts and some Gum-resins, the former if too hard only needing a little water, and the latter a few drops of spirit to soften them to the required degree of plasticity. Every druggist has his favorite pill-excipient, many using a paste made of powdered Tragacanth 1, Glycerin

3½ and Water 1 part, while others use Extract of Malt, or a mixture o Syrup and powdered Acacia, for general use. *Powdered Tragacanth* t give tenacity, *Glycerin* to keep the mass soft, and *Water* to develop th adhesive qualities of many ingredients, will answer for fully nine-tenth of all the cases which occur in practice. These three excipients shoul stand on the dispensing counter ready for use, and all ready-made past or mixtures should be discarded, as being slovenly, dirty and liable t change. The excipients described below are those in general use, and a arranged in the order of their comparative importance, viz. :—

LIQUID EXCIPIENTS.

Glycerin,—is a very valuable excipient, as it continually attracts moisture from t atmosphere, and pills made from it do not get hard. It should be used always for Q nine pills. *Glycerites of Starch* or *Tragacanth* are generally useful excipients. T former is official, the latter is made in the proportion of ʒss to the ℥.

Glucose,—is a good excipient, being colorless, adhesive, and not readily volatilized ordinary temperatures. Since its introduction by Mr. Lascheid for this purpose it steadily grown in favor.

Honey,—may be used for dark-colored substances. It should be evaporated to one-h its bulk, and then if mixed with a little Tragacanth, it makes an excellent excipient insoluble powders.

Extract of Malt,—is a pretty fair excipient, but has the disadvantage of its dark co

Syrup,—is a fair excipient for powders, but it should not be used for metallic salts, es cially Calomel, which it reduces in a short time. *Syrup of Acacia* is good where th is little room left for the excipient, but if kept long, pills made with it become very h and insoluble.

Mucilage of Acacia,—is very adhesive, but not a good excipient for the same rea as given for the syrup.

Water,—is only used alone as an excipient when the ingredients possess sufficient ad siveness to be developed by the water. Such are the following powders: Aloes, Rhub Kino, Tannic Acid, Opium, Squill, Asafetida,—also Citrate of Iron, Sulphate of B berine, etc.

Alcohol,—is used to soften Camphor, Compound Extract of Colocynth, Guaiac, resi extracts, gums, etc.

SOLID EXCIPIENTS.

Tragacanth,—is an excellent excipient, especially for substances which are too giving them body and elasticity.

Acacia,—is added to give more adhesiveness than can be obtained from viscid liq alone. Pills made with it are generally very hard. It is used for Nitrate of Silver, w may explode if mixed with vegetable extracts or glucose.

Soap,—is the best for resinous and fatty substances, increasing the solubility of the for It is more employed in the official pills than any other excipient, but should not be for substances which are decomposed by an alkali, nor for Tartar Emetic.

Bread-crumb (Mica Panis),—is an excellent excipient for Croton Oil, or other pow liquid substances, as Volatile Oils.

Confection of Rose,—is too bulky for general use, but is a good excipient for very ac agents, like Strychnine, which are used in small quantity.

Althæa,—is good for absorbing and adhesive purposes, but is too bulky for general

Petrolatum, *Cacao Butter* and *Resin Cerate*,—are used for oxidizable substance Potassium Permanganate.

Kaolin,—is well adapted for Nitrate of Silver, and other substances which are e decomposed.

Liquorice,—is an old excipient, but not much employed now. In powder it ma used for oils.

CONSPERGATIVES,—are absorbent powders which are dusted upon finished pills and put around them in the box or vial in which they are dispensed, to keep them from sticking together and losing their shape. Powdered Liquorice was formerly much used for this purpose, but the best conspergatives are *Lycopodium*, *Talc*, *Althæa*, and *Rice Flour*, the latter especially for white pills.

SUBSTANCES SUITABLE for the pilular form of medicine are the following:

Those acting in small doses.
Those intended to act slowly.
Those to act on the lower bowel.
Heavy, insoluble substances.
Fetid substances.
Vegetable extracts,
Gum-resins, Balsams, Turpentine.

When the basis is an unadhesive substance, one of the other ingredients should be an extract or a vegetable powder, which will form a mass by moisture alone. Attention to this rule in prescribing pills will often prevent the increase of their size by inert excipients.

DIFFICULT SUBSTANCES to combine, except by peculiar treatment, are met with frequently. The following notes will cover most of these cases:

Aloes,—is best treated on a heated slab with alcohol in very small quantity. Soap is the excipient in the official Pilulæ Aloes.

Butyl Chloral Hydrate,—should be treated with a little Confection of Rose and thick mucilage.

Calcium Sulphide,—should be well triturated with an equal quantity of Sugar of Milk, and then worked up with a little powdered Liquorice-root and Tragacanth Mucilage.

Camphor,—should be powdered with a little alcohol, and may be worked into a pill-mass with Glycerite of Tragacanth after the evaporation of the alcohol.

Carbolic Acid,—requires nearly an equal part of wheaten flour or bread-crumb, with a very minute quantity of Glycerite of Tragacanth. *Creasote* may be made into a mass by the addition of powdered Liquorice with a very little bees' wax. If made into a pill with Oxide of Silver it will explode unless the silver salt be first diluted by trituration with Liquorice, Gentian or some other inert powder.

Citrate of Iron and Quinine,—is very deliquescent with most excipients. Canada Balsam is the best for it.

Copaiba,—may be made into pill-mass by the addition of a little Carbonate of Magnesium or Wax.

Croton Oil,—is best worked up with bread-crumb, though powdered Liquorice and mucilage may be used.

Ferrum Iodide,—in pill form requires special manipulation and protection to remain unoxidized. The official Pil. Ferri Iodidi is prepared with Iodine and Reduced Iron, has Liquorice, Sugar and Acacia as excipients, and is protected by a coating of Balsam of Tolu (see *ante*, page 216). In other formulæ Acacia, Althæa, Cocoa-butter, Elm-bark and Liquorice are used as excipients.

Ferri Sulphas,—is used in Blaud's Pill and in the official Pil. Ferri Compositæ, with Carbonate of Potassium, to form by mutual decomposition Ferrous Carbonate, which quickly passes into the ferric salt by exposure. Myrrh in powder and Syrup are the excipients used for the official pill.

Gallic Acid,—makes a good pill with a very small quantity of Glycerin. *Tannic Acid* requires about one-fifth its weight of Glycerin and one-tenth of Mucilage.

Phosphorus,—presents the problem of combining it in pill without letting it oxidize. This is believed to be accomplished by the pharmacopœial directions for the Pil. Phosphori, according to which the Phosphorus is dissolved in Chloroform in a test-tube, then quickly worked into a mass with Althæa, Acacia, Glycerin and Water, and finally the pills are coated by shaking with an Ethereal solution of Balsam of Tolu. Carbon Bisulphide is a better solvent, but when it is used the pill-mass retains its disgusting odor.

Potassium Acetate,—requires Canada Balsam to secure its stability in pill form. *Potassium Iodide* is best manipulated by rubbing into a smooth paste with a very little water, then adding a small quantity of Liquorice powder. *Potassium Permanganate* should be worked up with kaolin and a very little water. Resin Cerate, Soft and Hard Paraffin and Cacao-butter are also used as its excipients.

Quinine,—requires very clean hands and tools, and a colorless excipient, as Glycerin or Glucose, to make a nice looking pill. If one part of Tartaric Acid is added to four of the Quinine salt the mass will be less likely to crumble and will be of less bulk. Sulphate of Quinine may be made into small and soluble pills by simply triturating it with Aromatic Sulphuric Acid ♏iij to each 5 grains of the salt. The moulding into pills should be done at the moment when the mass has begun to dry. A drop of syrup or honey, added at this time, will prevent the too rapid hardening of the mass.

Rhubarb,—in powder makes a good mass with one-fifth of its weight of Glycerin; but Soap is the excipient ordered for the official Pilulæ Rhei.

SUBSTANCES UNSUITED to the pilular form are:—

Those requiring large doses, and those which are volatile.
Emetics, and other agents administered for immediate effect.
Essential Oils in quantity exceeding half a drop to each pill.
Oils and other bodies which require much solid matter to make a mass; except those having a very small dose, as Croton Oil.
Deliquescent Salts, unless intended to be used immediately.
Efflorescent Salts, unless deprived of their water of crystallization.

Deliquescent Salts.

Ammonii Iodidum.
——— Nitras.
——— Valerianas.
Auri Chloridum.
Calcii Chloridum.
Chinoline Salts, except the Tartrate, which is stable.
Lithii Citras.
——— Bromidum.
——— Salicylas.
Magnesii Citras.
Potassa.
——— cum Calce.
Potassii Acetas.
——— Carbonas.
——— Citras.
——— Cyanidum.
——— Hypophosphis.
——— Sulphis.
——— Tartras.
Sodii Hypophosphis.
——— Iodidum.
Zinci Bromidum.
——— Chloridum.
——— Iodidum.

Efflorescent Salts.

Alumen (slightly).
Ammonii Carbonas.
——— Phosphas.
Ant. et Potass. Tartras (slightly).
Cupri Acetas.
——— Sulphas.
Magnesii Sulphas (slightly).
Potassii et Sodii Tartras (slightly).
——— Ferrocyanidum (slightly).
Quininæ Bisulphas.
——— Sulphas (after a time).
Soda.
Sodii Acetas.
——— Arsenias (slightly).
——— Benzoas.
——— Boras (slightly).
——— Carbonas.
——— Hyposulphis.
——— Phosphas.
——— Santoninas (slightly).
——— Sulphas.
——— Sulphis.
Strychninæ Sulphas.
Zinci Acetas.
——— Sulphas.

COATED PILLS are manufactured upon a large scale by the large drug houses, extensive machinery being employed for the purpose. The coating material used is either Sugar or Gelatin. The U. S. Pharmacopœia directs that two of the official pills shall be coated by being shaken with a solution of Balsam of Tolu in Ether, viz.—Pil. Ferri Iodidi and Pil.

In extemporaneous pharmacy it is rarely practicable to coat
nything except gold or silver leaf, and this is sometimes directed
scriber, the word "*Deaurenter*—let them be gilded" being
subscription. To do this neatly the pills should have no trace
on them, but should be first coated with a trifle of fresh mucilage
between the mucilage-moistened fingers, each pill being then
rectly on to a sheet of gold or silver leaf, until a dozen or more
sited. The leaf and its pills are then allowed to slide into a
xwood shaker, or the leaf may be first placed in the shaker and
opped on it there. A cautious circular movement being given
er the pills are caused to travel around its walls, and when the
noved they will be found to have each received an even coat-
metal used. Gold leaf should always be employed for pills of
or Asafetida, as silver is amalgamated with the former and
k by the latter.

ay be used for coating small numbers of pills, which should be of very firm
efore the coating is applied. Each pill is rolled between two fingers with a
egg, and then revolved in a warm pan. Another method of finishing them
g with albumen, to rotate them in a tray with powdered French chalk until
become smooth and shiny. When carefully done this process gives a very

SED PILLS, as now largely manufactured by several reliable
st of various medicinal powders pressed into pill or tablet shape
ry. They are extremely convenient preparations for the phy-
, as quite a variety can be carried in a pocket-case, and as slight
sufficient to reduce them to powder, they can be dispensed with
accuracy of dosage. Messrs. John Wyeth & Brother, of Phila-
nufacture a very extensive line of these pills, including nearly
t up in the sugar-coated or gelatin-coated form by other houses.
ist of this firm should be in the hands of every physician who
ll stock of medicines in his office, or who carries a pocket-case
The following list includes the most important of these prepa-
figures representing the number of grains in a pill in each

us, $\frac{1}{60}$, $\frac{1}{40}$, $\frac{1}{30}$, $\frac{1}{20}$.
, 5.
5.
, 2½, 5.
2½, and Morphine $\frac{1}{12}$.
2, 5.
.
oes et Ferri (U. S. P.).
yrrh 1.
hei 1⅓, et Gentian ⅔.
½.
romide, 5, 10.
hloride, 3, 5, 10.

Atropine, $\frac{1}{60}$.
Bismuth Subcarb., 5.
—— Subnitrate, 5, 10.
Borax, 5.
Caffeine Citrate, 1.
Calcium Sulphide, $\frac{1}{10}$, ¼, ½, 1.
Calomel, ¼, ½, 1, 2, 3, 5.
Calomel 2, Opium 1.
Camphor Monobromated, 2, 3, 5.
Cathartic Comp. (U. S. P.) and Imp'ved.
Cerium Oxalate, 2.
Cinchona Alkaloids (Mixed).
Cinchonine Sulphate, 2, 3, 4, 5.

Cinchonidine Sulphate, 2, 3, 4, 5.
Codeine, ¼.
Digitaline, $\frac{1}{60}$.
Extract of Cannabis Indica, ¼.
Extract of Ignatia Amara, ¼, ½.
Extract of Nux Vomica, ¼, ½.
Ferrum (Quevenne's), 1, 2.
Ferrum Arseniate, ⅛, ¼.
—— Proto-carb., 3, 5.
—— Lactate, 1.
—— Pyrophosphate, 2.
—— and Quinine Citrate, 2, 3, 5.
Hydrargyrum, 1, 3. 5.
—— Chlor. Corros., $\frac{1}{60}$, $\frac{1}{40}$, $\frac{1}{20}$, $\frac{1}{10}$.
—— Iod. Rub., $\frac{1}{32}$, $\frac{1}{16}$.
—— Proto-Iodide, $\frac{1}{10}$, ⅛, ⅙, ¼, ½.
Ipecac. et Opii, 2, 3, 5.
Morphine Sulphate, $\frac{1}{10}$, ⅛, ⅙, ¼, ½.
Opium Deodorized, 1.
Opium ½, and Lead Acetate 1½.
Pepsin Sacch., 2, 5.
Podophyllin, $\frac{1}{10}$, ⅛, ¼, ½, 1, 2.
Potassium Bromide, 5, 10.
—— Chlorate, 5.
—— Iodide, 5.
—— Nitrate, 5.
—— Permanganate, ½, 1, 2.
Quinine Bisulphate, ½, 1, 2, 3, 4, 5.
—— Salicylate, 2.
—— Sulphate, ½, 1, 2, 3, 4, 5.
Quinquinine, 2, 3.
Rhubarb 3. Rhei Co. (U. S. P.).
Rhei 2, et Magnesiæ 2.
Salicin, 2½, 5.
Santonin, 1.
Santonin 1, et Calomel 1.
Sodium Bicarbonate, 5.
—— Salicylate, 3, 5.
Strychnine, $\frac{1}{100}$, $\frac{1}{60}$, up to $\frac{1}{20}$.
Zinc Phosphide, $\frac{1}{12}$ up to ½.

The following prescriptions represent the composition of a few unofficial pills in general use. A complete pill formulary is easily obtained, being published annually by each of the principal manufacturers.

Pills of Iron.

℞. Ferri Reducti, ... gr. l.
Mannæ, ... gr. xv.
Glucosi, q. s.
Fiat massa, et div. in pil. xxv.
Sig.—One after each meal.

Emmenagogue Pill (*Otto*).

℞. Ferri Sulph. Exsic., ... gr. xlviij.
Pulv. Aloes, ... gr. xij.
Terebinthinæ, ... gr. xxxij.
Ol. Terebinth., ... ♏x.
Fiat massa, et div. in pil. xxx.
Sig.—Two, three times a day.

Hooper's Female Pills.

℞. Pulv. Aloes Socot., . . . gr. xlviij.
Ferri Sulph. Exsic., ... gr. xxiv.
Ext. Hellebori Nig.,
Pulv. Myrrhæ,
Saponis, ... āā gr. xij.
Pulv. Canellæ Alb.,
Pulv. Zingiberis, ... āā gr. vj.
Aquæ vel Syrupi, q. s.
Fiat massa, et div. in pil., quisque pondo gr. ijss.
Sig.—One to three at a dose.

Anaphrodisiac and Sedative.

℞. Camphoræ, ... gr. xxx.
Lupulini, ... gr. xx.
Fiat massa, et div. in pil. xx.
Sig.—One thrice daily.

Astringent Pill.

℞. Plumbi Acetatis, ... gr. xvj.
Pulv. Camphoræ, ... gr. xij.
Pulv. Opii, ... gr. iij.
Bismuthi Subcarb., ... gr. xij.
Ext. Gentianæ, q. s.
Fiat mass, et div. in pil. xij.
Sig.—One thrice daily.

Astringent Pill.

℞. Argenti Nitratis, ... gr
Pulv. Cretæ (Gallicæ), ... gr
Petrolati, q. s.
Fiat massa, et div. in pil. xl.

Cholagogue Pills (*Squibb*).

℞. Resinæ Podophylli, ... gr.
Ext. Belladon. Alcohol, . gr.
Pulv. Capsici,
Pulv. Sacch. Lactis, . . . āā gr.
Pulv. Acaciæ, ... gr.
Glycerini Syrupi, q. s.
Fiat massa, et div. in pil. xxiv.
Sig.—One or two as required.

Aperient Pills.

℞. Pulv. Aloes Socot., ... gr.
Pulv. Rhei, ... gr.
Hydrarg. Chlor. Mitis, . . . gr.
Ant. et Potas. Tart., ... gr.
Fiat massa, et div. in pil. xxiv.
Sig.—One or two as needed.

onic Pill for Women.

ninæ Sulph.,
rseniosi, ... aa gr. j.
Belladonnæ,, ... gr. v.
næ Sulph., ... gr. xxxv.
Ferri Carb., ... gr. xc.
sa, et div. in pil. xxxv.
e three times daily.

Anti-bilious Pills.

℞. Pulv. Scammonii,
Pulv. Aloes Socot.,
Pulv. Gambogiæ,
Hydrarg. Chlor. Mitis,
Potass. Bitart., ... aa gr. xx.
Ext. Taraxaci, q. s.
Fiat massa, et div. in pil. xx.

n Capsules are to be obtained from the drug stores, of various
o to 10. They are a convenient means of administering oils or
solids, and when filled may be swallowed as easily as a large pill.
of the manufacturers *Soluble Elastic Capsules* are prepared, each
g an ordinary dose of such medicines as Castor Oil, Cod-liver
The largest of these capsules makes a bolus which may be swal-
h a little effort, as it is quite compressible and changes its shape
calibre of the passage. The ordinary capsules are easily filled
l of a paper funnel, and the end of a pen-holder as a packer;
e devices (*capsule-fillers*) may be obtained for the purpose of
g the operation.

Opii, ... gr. x.
Camphoræ, ... gr. xx.
Alb., q. s.
iant capsulæ x.
e at bedtime for chordee; repeat
s if necessary.

℞. Copaibæ, ... ʒ iss.
Oleo-resinæ Cubebæ, . . . ʒ ss.
M., et fiant capsulæ xij.
Sig.—Two capsules three times daily, soon after meals, for gonorrhœa.

es (Trochisci),—also named Tablets, Pastilles, Lozenges, etc.,
pressed Pills, are not readily compounded at the dispensing
out may be obtained in all first-class shops, being prepared in
iety by the manufacturers. Besides the official Troches (see
431), those named in the following list are generally for sale:—

Troches (*Lozenges*).

.
½, Catechu gr. ij.
Chloride gr. ij, and Cubebs

lor. gr. ij, Liquorice gr. viij.
id, gr. ½.
ij.
ij, and Charcoal, gr. v.
-Ol.-res. Cubebs, gr. $\frac{1}{5}$, Tolu,
Sassafras, gr. $\frac{1}{10}$, and Ext. of
, gr. vij.
ure.
id, gr. j.

Ginger and Sodium Bicarb.
Guaiac., gr. ij.
Kino, gr. ij.
Lettuce, gr. j.
Lime-juice.
Logwood, gr. ij.
Magnesia, gr. iij.
Pellitory, gr. j.
Pepsin, gr. iij, Charcoal, gr. iij, Magnesia, gr. ij, and Ginger, gr. j.
Potassium Bitartrate, gr. iij.
Potassium Citrate, gr. iij.
Santonin, gr. ½, and Calomel, gr. ½.

Compressed Tablets.

Ammonium Chloride, gr. iij.
Charcoal, gr. x.
Cocaine Hydrochlorate.
Dover's Powder.
Mercury, Yellow Oxide, gr. $\frac{1}{200}$.
Pepsin and Pancreatin.
Potassium Bicarb., gr. v.
Potassium Chlorate, gr. v.
Potas. Chlorate and Borax, āā gr. 2½.
Potas. Chl. and Ammon. Chloride.
Spencer's Chloramine Pastilles.
Sodium Bicarb., gr. iv, Ammon. Carb., gr. ¼, Ol. Menth. Pip., gtt. ⅙.

Compressed Tablets.

Sodium Salicylate, gr. iij.
Antiseptic. Hydrarg. Chlor. Corr., gr. vijss.
Fehling's Test for grape-sugar in the urine.

Hypodermic Tablets.

Morphine Sulphate, gr. $\frac{1}{12}$ to ½.
Morph. Sulph. and Atropine Sulph.
Atropine Sulphate, gr. $\frac{1}{200}$–$\frac{1}{50}$.
Strychnine Sulphate, gr. $\frac{1}{100}$.
Apomorphine Muriate, gr. $\frac{1}{20}$, $\frac{1}{10}$.
Pilocarpine Muriate, gr. $\frac{1}{20}$, ½.
(And several others.)

Confections (Confectiones), and **Electuaries** (Electuaria),—are very seldom prescribed, and therefore can have but little place in extemporaneous pharmacy. They are medicinal powders, etc., beaten up with sugar, honey or molasses, to the consistence of a thick paste, and are administered with a spoon like preserved fruits. The two official confections are described on page 431, and a few old formulæ for similar preparations are given below as pharmaceutical curios. The first is a meritorious prescription.

Electuary for Piles.

℞. Potassii Bitartratis,
Potassii Nitratis,
Pulv. Jalapæ, ... aa ℥ss.
Confectio Sennæ, ... ʒj.
Syrupi Zingiberis, q. s.

M. Fiat electuarium.

Sig.—A piece the size of a marble to be taken thrice daily.

The Chelsea Pensioner.

℞. Sulphuris Loti . . . . . ℥ij.
Potassii Bitart., ... ℥j.
Pulv. Rhei, ... ʒij.
Guaiaci Resinæ, ... ʒj.
Mellis Despum., ... ℔j.
Myristicam Pulv., ... j.
M. Fiat electuarium.

Sig.—A dessertspoonful twice daily, as a laxative in chronic rheumatism.

Confectio Damocratis.

[An ingredient of Warburg's Tincture.]

This preparation was official in the London Pharmacopœia of 1745. It contained 1 grain of Opium in ℥ss, and consisted of 45 ingredients, as follows, viz.: Cinnamon, 14 parts; Myrrh, 11 parts;—White Agaric, Spikenard, Ginger, Spanish Saffron, Treacle, Mustard Seed, Frankincense and Chian Turpentine, of each 10 parts;—Camel's Hay, Costus Arabacus, Zedoary, Indian leaf, Mace, French Lavender, Long Pepper, Seeds of Harwort, Juice of ripe Cistus, strained Storax, Opponex, strained Galbanum, Balsam of Gilead, Oil of Nutmeg, Russian Castor, of each 8 parts;—Water Germunder, Balsam-tree Fruit, Cubeb, White Pepper, Seeds of Cretian Carrot, Poley Mont, strained Bdellium, of each 7 parts;—Gentian-root, Celtic Hard, Leaves of Dittany of Crete, Red Rose, Seeds of Macedonium, Parsley, Sweet Fennel Seeds, Seeds of Lesser Cardamom, Gum Arabic, Opium, of each 5 parts;—Sweet Flag, Wild Valerian, Anise-seed, Sagapenum, of each 3 parts; Spigrul, St. John's Wort, Juice of Acacia, Catechu, Dried Bellies of Skunk, of each 2½ parts;—the roots finely powdered and the whole mixed thoroughly into a paste with Clarified Honey.

Powders (Pulveres),—as prepared extemporaneously are generally compound, and may be mixed on a slab with a spatula, but a much better

od of mixing them is by trituration in a mortar. The latter should
s be employed except in the case of substances which may explode
treated, as Potassium Chlorate with oxidizable substances. (See
page 449.) The *Diluent* best employed in powders is Sugar of Milk,
count of its hardness, its density and its comparative insolubility.
loring agent, as Carmine in minute quantity, is a useful ingredient,
ing the eye to judge of the degree of mixing and subdivision ob-
d. Powders containing soluble salts, extracts, volatile oils, camphor,
y other hygroscopic or volatile substances, should be dispensed in
d paper. For ordinary powders the plain white paper of the drug
s will answer, but a better paper for small powders is one having a
surface finish and made very thin, as the white glazed French demy.
ders are often ordered in *Wafers* (Cachets), to be swallowed without
lding. The division of powders into the number of papers (*Char-*
ordered, and folding them neatly, requires a considerable amount
actice. A small machine is used over which the ends of the papers
ent, in order to have them of the proper size for the box in which
are usually dispensed. If they are to be put into an envelope less
ness of folding is required, and the mechanical contrivance may be
nsed with.

BSTANCES suitable to administration in the form of powders are those
h are insoluble, those which would be chemically incompatible in fluid
, and certain pulverizable extracts. Those which are unsuited to this
are such as have a very nauseous taste or odor, substances of which
dose is large, those which are deliquescent, efflorescent or very vola-
and those which liquefy on mixing. A list of deliquescent and efflo-
nt salts is found on page 466, while the following named, though
lone, become moist when triturated together, viz. :—

Sodium Sulphate and Potassium Carbonate.
Zinc Sulphate and Lead Acetate.
Camphor and Chloral Hydrate.

ny substances cannot be powdered without the intervention of another
: thus Opium requires a hard substance like Sugar of Milk or Potas-
Sulphate, Camphor requires a minute quantity of Alcohol, Myrrh
Sugar or Gum, etc. Substances, as the alkaloids and their salts,
are very active and are used in very small doses, require some
substance to give them bulk enough for division and handling.
of Milk will be found the best agent for this purpose. Prescrip-
may order the ingredients for a single powder, with directions to
nse a certain number of the same composition; or they may give the
ities for the whole number of powders ordered, with instructions to
e into a certain number. The dispenser should carefully scan the
iption in order to avoid the multiplication of quantities where divi-

sion is intended. The official powders are enumerated on page 431; and the following formulæ will serve to illustrate those generally prescribed:

Astringent Powder for Infants.

℞. Plumbi Acetatis, ... gr. ij.
Pulveris Opii, ... gr. ss.
Camphoræ, ... gr. j.
Sacchari Lactis. . . . . . gr. iij.
Trit. et div. in chartulas xij.
Sig.—One every 2 or 3 hours in diarrhœa of infants. For an adult the above represents one dose.

Gastric Sedative.

℞. Bismuthi Subnitratis, . . . ʒj.
Pulveris Rhei,
Pulveris Aromat., . . . aa ʒss.
M., et div. in chartulas vj.
Sig.—One before each meal.

Laxative Powder.

℞. Hydrarg. Chlor. Mitis, . . gr. x.
Sacchari Lactis, ... gr. xx.
M., et fiant pulv. x.
Sig.—One powder twice daily.

Bismuth and Soda.

℞. Bismuthi Subnitratis,
Sodii Bicarb., ... aa ʒij.
Pulv. Zingiberis, ... gr. xl.
M., et div. in chartulas xij.
Sig.—One after each meal.
Corrective in dyspepsia, acne and eczema.

Antipruritic Powder.

℞. Pulveris Camphoræ, . . . ʒj.
Zinci Oxidi, ... ℥iv.
Pulv Amyli, ... ℥j.
M., et fiat pulvis.
Sig.—Use locally as a dusting powder to relieve itching.

Catarrh Powder.

℞. Bismuthi Subnitratis, . . . ʒiij.
Pulv. Acaciæ, ... ʒij.
Pulv. Talc., ... ʒij.
Morphinæ Muriatis, . . . gr. j.
M. Sig.—Use by insufflation.

COMPRESSED PILLS are really powders which have been compressed into pill shape by machinery. A little pressure from the blade of a spatula will restore them to powder form. (See *ante*, page 467.)

Triturations (Triturationes),—are powders containing minute doses of very active agents diluted with Sugar of Milk, and possessing a definite relation between the active ingredient and the diluent, namely, 1 in 10 according to the general formula of the U. S. Pharmacopœia, which, as well as the one official trituration, is described on page 432. Sugar of Milk is employed as the diluent because of its hardness and its comparative insolubility. The first of these qualities secures the fine comminution of the active ingredient whereby the action of the medicine is increased and better distributed. Its insolubility makes it the best diluent for powders or triturations administered from a spoon or glass with fluid, as is so often done, for unlike cane sugar it is not readily dissolved and does not leave the active substance behind on the surface of the utensil. Triturations are excellent forms for the administration of powerful alkaloids, which may thus be divided with great accuracy into the minute quantities required. Mercury and its salts are especially adapted to this method of preparation, being more uniformly divided and hence more active than when administered in any other form. Triturations of mercury with sugar were commonly used in England a hundred years ago, and triturations of many substances were employed by the Arabian physicians of the 13th century. But the subsequent adoption of these preparations by the homœopathists produced such a prejudice against them in the ranks of the regular profession that until recently any one using them stood in danger of being stigmatized as a homœopath. Their recent recognition by the U. S. Pharmacopœia under their proper title does away with any such implication, though it is much to be regretted that the compilers of the last revision of the British Pharmacopœia should have shown their fear of a name by continuing the title "Pulvis Elaterini Compositus" to designate a preparation which in every respect is a trituration. The preparations of Pepsin daily prescribed by physicians all over the country are really sugar-of-milk triturations of that ferment, and not pure Pepsin as many suppose. Prof. H. G. Piffard, Med. Dept. Univ. of the City of New York, in his treatise on the Materia Medica and Therapeutics of the Skin (N. Y., 1881), after detailing several microscopical examinations of pills and triturations, uses the following language :—

> "It is to be expected, therefore, that the protoiodide trituration will prove, *ceteris paribus*, more active than the pill, and such we have found it. . . . . Iodides of Mercury . . . . Since we have used the triturations, however, in preference to the ordinary pills, patients more rarely complain of disagreeable sensations. We have been enabled to materially reduce the size of the dose in order to obtain the desired effect. In other words, a larger proportion of the drug is utilized for *specific* purposes, while but a small amount remains to give rise to *local irritation*. . . . . I have nothing to add to this, except that I continue to use triturations of Mercury and other substances with increasing satisfaction. Beside those mentioned I employ Calomel, Cyanide of Mercury, Black Oxide of Mercury and Corrosive Sublimate in this form."

The following examples will illustrate the mode in which Triturations may be prescribed :—

℞. Hydrarg. Oxidi Flavi,. . . gr. ss.
Sacchari Lactis, ... gr. l.
Trit., et div. in chartulas xxiv.
Sig.—One twice daily.

℞. Hydrarg. Chlor. Mitis, . . gr. x.
Sacchari Lactis, q. s.
Trit., et div. in chartulas x.
Sig.—One powder daily.

℞. Morphinæ Sulph., ... gr. j.
Sacchari Lactis, ... gr. xvj.
Trit., et div. in chartulas viij.
Sig.—One every six hours.

℞. Acidi Arseniosi, ... gr. ss.
Sacch. Lactis, ... gr. xl.
Trit., et div. in chartulas xx.
Sig.—One powder thrice daily.

Suppositories (Suppositoria),—are small, conical, medicated bodies intended for introduction into the rectum, uterus, or urethra (bougies), occasionally into the vagina. No official suppositories are enumerated, but a general formula is prescribed by the pharmacopœia for their preparation (see *ante*, page 432). The basis is usually Cacao-butter, but for those intended for the urethra or uterus a mixture of Gelatin and Glycerin is considered the best excipient, being firmer and more plastic than cacao-butter, and more easily handled. Hollow cones of cacao-butter, or some composition resembling it, are kept in the shops, and will be used by the average druggist in filling prescriptions for rectal suppositories unless prohibited, as they save him considerable labor; the active drug being simply placed in the centre of the cone which is then sealed with a plug fitting in its base. These contrivances are by no means so efficient as the regular suppository, in which the medicinal agent is thoroughly incorporated with the excipient, for the former smear the rectum with a quantity of melted grease before the active portion of the preparation is permitted to come in contact with its walls. The agents used in suppositories are chiefly extracts and alkaloids; some few powders, and a few metallic salts are occasionally employed. Those for the adult rectum should contain from 15 to 30 grains of the excipient, for the vagina a drachm of cacao-butter is the average quantity. Those for the uterus and urethra are made of cylindrical instead of conical form, and about the diameter of a No. 9 catheter.

The methods of compounding suppositories are two, viz.:—that by the use of moulds (the official method), and that by hand. The former process is described on page 432, but many prefer the hand method, which is as follows: The medicament is mixed with finely shaved Cacao-butter by the aid of a spatula on a board or tile lightly dusted with Lycopodium or Starch. After a smooth and uniform mixture is thus obtained, the mass may be rolled into cylindrical form, cut into the required sizes and with the spatula given the required shape. Whe dispensed, they should be placed in a powder-box, between layers o cotton.

Bougies or Pencils, as urethral and uterine suppositories are ofte termed, may be prepared by melting together White Gelatin 3, Glyceri 1, and Distilled Water 1 part by weight, then adding the medicament and drawing the mass into a glass tube previously oiled inside. Whe cold the bougie may be pushed out and cut into suitable lengths.

The Br. Pharmacopœia describes 8 official suppositories, as follow viz:—

Suppositoria Acidi Carbolici cum Sapone,—Carbolic Acid, 12 grains; Curd Soap, powder, 180 grains; Glycerin of Starch, 40 grains; to make 12 suppositories, eac containing 1 grain of Carbolic Acid.

Suppositoria Acidi Tannici,—Tannic Acid, 36 grains; Oil of Theobroma, 144 grain to make 12 suppositories, each containing 3 grains of Tannic Acid.

Suppositoria Acidi Tannici cum Sapone,—Tannic Acid, 36 grains; Glycerin of Starc 30 grains; Curd Soap, in powder, 100 grains; Starch in powder q. s.; to make 12 su positories, each containing 3 grains of Tannic Acid.

Suppositoria Hydrargyri,—Mercurial Ointment, 60 grains; Oil of Theobroma, 1 grains; to make 12 suppositories, each containing 5 grains of Mercurial Ointment.

Suppositoria Iodoformi,—Iodoform, 36 grains; Oil of Theobroma, 144 grains; to m 12 suppositories, each containing 3 grains of Iodoform.

Suppositoria Morphinæ,—Morphine Hydrochlorate, 6 grains; Oil of Theobroma, 174 grains; to make 12 suppositories, each containing ½ grain of the Morphine salt.

Suppositoria Morphinæ cum Sapone,—Morphine Hydrochlorate, 6 grains; Glycerin of Starch, 30 grains; Curd Soap, in powder, 100 grains; Starch, q. s. to make 12 suppositories, each containing ½ grain of the Morphine salt.

Suppositoria Plumbi Composita,—Acetate of Lead, 36 grains; Opium, in powder, 12 grains; Oil of Theobroma, 132 grains; to make 12 suppositories, each containing 3 grains of Lead Acetate and 1 grain of Opium.

Suppositories and Bougies may be prescribed in the manner illustrated by the following formulæ:

Anodyne Suppository.

℞.	Ext. Opii,	gr. vj.
	Ext. Belladonnæ,	gr. ss.
	Ext. Hyoscyami,	gr. ij.
	Olei Theobromæ, q. s.	

M. Fiant suppositoria vj.
Sig.—One into the rectum morning and night.

Anthelmintic.

℞.	Santonini,	gr. xij.
	Olei Theobromæ,	ʒj.

M. Fiant suppositoria vj.
Sig.—One into the rectum as directed.

Quinine Suppository.

℞.	Quininæ Sulphatis,	gr. v.
	Olei Theobromæ,	gr. x.

Fiat suppositorium unum, mitte tales sex.

Wade's Bougies.

℞.	Iodoformi,	ʒj.
	Bismuthi Subnitrat.,	ʒj.
	Chloralis,	gr. viij.
	Morphinæ Sulphat.,	gr. iij.
	Ol. Rosæ,	♏x.
	Gelatini, et Glycerini, q. s.	

M. Fiant bougia xij.
Sig.—One into urethra thrice daily.

Bougie for Gleet.

℞.	Zinci Sulphatis,	gr. vj.
	Ac. Carbolici,	♏iij.
	Pulv. Hydrastis,	gr. xij.
	Ext. Belladonnæ,	gr. xij.
	Gelatini, et Glycerini, q. s.	

M. Fiant bougia xij.
Sig.—One into urethra night and morning.

Ointments (Unguenta) and **Cerates** (Cerata),—are frequently ordered on extemporaneous formulæ, though the 34 official preparations of these classes (see *ante*, pages 432, 433) would seem to give the physician a sufficiently wide field for selection. The basis used is usually either the official Ceratum or Unguentum, but Petrolatum, Lard, Lead Plaster with a fixed oil, etc., may be used. Lard is probably the best basis for all ointments, as it softens the skin better than any other similar substance. Its disadvantage is that it soon becomes rancid, so that preparations made with it must be quickly used. *Cerates* only differ from ointments in their firmer consistence, melting at temperatures above 104° F., while the latter melt below the ordinary temperature of the body. *Oleates* are described fully on page 71.

The process of compounding an ointment or a cerate is sufficiently simple, being generally a mere matter of triturating the ingredients together in a mortar, or of their incorporation on a slab by means of a spatula. Rarely will melting be required in the compounding of extemporaneous ointments. When extracts, powders or gritty substances are ordered, the ingredients should be first pulverized into a fine powder, then triturated with a small quantity of the basis into a smooth, impalpable paste; the remainder of the basis being added gradually, until the whole is thoroughly incorporated. A warm mortar may be required for hard extracts. Soluble salts should be triturated with a little water before adding the excipient. Camphor needs a little alcohol to enable it to be pulverized; and Iodine should be rubbed to a fine powder, then a little alcohol added and finally the excipient by degrees. Iodide of Sulphur requires persevering work with a small portion of olive oil. Borax should be triturated with glycerin and Red Oxide of Mercury with distilled water. A bone or horn spatula should be used for all ointments, as steel or iron blades will injure many substances, particularly alkaloids, free acids, tannin or iodine, and several of the mercurial salts. Volatile substances should be added last, and quickly worked in, so that their evaporation may be as slight as possible.

Ointments are dispensed usually in amber-colored glass pots with wooden or metallic covers, or in porcelain jars called *Gallipots*. In hospital and dispensary practice the common chip pill-box is used, but soon becomes excessively dirty and disagreeable to handle.

Ung. Iodoformi Compos.

℞. Iodoformi, ... ʒj.
Ol. Anisi, ... ♏xx.
Ol. Rosæ,
Ol. Ylang-ylang, ... aa ♏v.
Ung. Aquæ Rosæ, ... ℥j.
M. Fiat unguentum.
Sig.—Ointment.

Unguentum Anti-prurititicum.

℞. Camphoræ,
Chloralis Hydrat., ... aa ʒj.
Tere una ad liquorem, dein adde
cum tritu—
Unguenti Aquæ Rosæ, ... [illegible]j.
M. Fiat unguentum.
Sig.—Ointment.

Plasters (Emplastra),—are rarely prepared extemporaneously, the official and many other ones being produced on a large scale by the manufacturers, and kept in stock by all druggists. As a consequence the compounding and spreading of a plaster by the pharmaceutist has become a lost art. The official plasters are enumerated and described on page 433, and may be ordered by prescription in the manner illustrated below. *Blisters* may be produced by the application of any preparation of Cantharides sufficiently strong for the purpose. Either of the official Cerates of Cantharides (see page 151), may be spread on Adhesive Plaster (Emplastrum Resinæ), making a blistering plaster; or Cantharidal Collodion (see page 151), may be painted over the surface. Plasters are usually ordered by the square inch, but a model of the shape and size may be drawn on paper, and the plaster be directed to conform thereto, as in the first of the following prescriptions. Two of the official *Papers* (Chartæ) are practically plasters, viz.—Charta Cantharidis and Charta Sinapis.

Emplastrum Vesicatorium.

℞. Cerati Cantharidis, q. s.
Extende supra Emplastrum Resinæ hujus formæ et magnitudinis.
Sig.—Blistering Plaster, to be applied over the region of the heart.

Counter-irritant and Anodyne.

℞. Chartæ Sinapis,
Emplas. Belladonnæ, āā, 3″ x 6″—
Sig.—Apply the mustard paper first, *to* be followed by the plaster when the surface has been well reddened.

Poultices (Cataplasmata),—are usually prepared at the residence of the patient, the ingredients only being ordered from the druggist. They are generally employed as a means of applying heat and moisture to a certain portion of the body, but are sometimes medicated with anodyne, counter-irritant or disinfectant agents. Poultices are not official in the U. S. Pharmacopœia, but are in the British, the following list including all so recognized.

Cataplasma Carbonis,—Wood Charcoal 1, Crumb of Bread 4, Linseed Meal 3, Boiling Water 20 parts.

Cataplasma Conii,—Hemlock-juice 1, evaporated to half its volume, Linseed Meal 4, Boiling Water 10 parts.

Cataplasma Fermenti,—Beer Yeast 3, Wheaten Flour 7, Water at 100° F., 3 parts.

Cataplasma Lini,—Linseed Meal 2, Boiling Water 5 parts, mixed with constant stirring.

Cataplasma Sinapis,—Mustard, Linseed Meal, Boiling Water and Water, of each a sufficiency.

Cataplasma Sodæ Chlorinatæ,—Solution of Chlorinated Soda 1, Linseed Meal 2, Boiling Water 4 parts.

Paints (Pigmenta),—are preparations for external use, which cannot be classed with the preceding. They are generally prescribed in skin-diseases, for use over inflamed joints, or for application to the throat with a camel's-hair brush.

℞. Tinct. Iodi, ... ℥j.
Ætheris Fort., ... ʒiij.
Tinct. Aconiti, ... ʒss.
Ext. Belladon. Fl., ... ʒiv.
Morph. Sulph., ... gr. ij.
Iodi, ... ʒjss.
M. et fiat pigmentum.
Sig.—Paint 4 or 5 coats freely over the inflamed and painful parts.

℞. Alcoholis, Saponis Viridis,
Olei Cadini, ... aa ʒj.
M. et fiat pigmentum.
Sig.—Paint over the part.

℞. Olei Tiglii, ... ʒj.
Ætheris Fort., ... ʒij.
Tinct. Iodi, ... ʒv.
M. Sig.—Paint on once in 3 days.

GASEOUS PREPARATIONS.

Vapors (Vapores) and **Inhalations** (Inhalationes),—are medicines in the form of a vapor, a gas or an atomized spray, to be inhaled by the patient for their local action on the respiratory tract. The well-known steam-atomizer is the agent by which most of these preparations are administered, though many substances may be inhaled from the surface of hot-water, from a sponge in a bottle surrounded by a hot cloth, or from a heated shovel. They are prescribed in the usual manner, as follows:—

Stimulant Inhalation.

℞. Olei Cubebæ, ... ʒij.
Magnesii Carbonat., ... ℥j.
Aquæ, ... ℥iij.
M. Sig.—A teaspoonful in a pint of water at 150° F., for each inhalation.

Carbolized Inhalation.

℞. Acidi Carbolici, ... ♏xlviij.
Aquæ, q. s. . . . . *ad* ℥ij.
M. Sig.—Use one-half in the cup of a steam-atomizer for each inhalation.

Oil of Pine.

℞. Ol. Pini Sylvestris, ... ʒij.
Magnesii Carb., ... ʒj.
Aquæ, ... ℥iij.
M. Sig.—A teaspoonful on a pint of hot water for each inhalation.

Tar and Turpentine.

℞. Ol. Picis Liquidæ,
Ol. Terebinth., ... āā ℥ij.
M. Sig.—Pour slowly on a hot shovel in the sick-room, keeping the vapor confined therein.

The official Charta Potassii Nitratis, Nitre-paper (see *ante*, page 323), is a preparation intended for use as an inhalation, its vapors while burning being taken into the lungs.

PART III.

SPECIAL THERAPEUTICS.

Applied Therapeutics may be studied either with the various thera-
tic agents as the objects of chief consideration, as in the first part of
work; or with the different diseases and morbid conditions forming
objects of study in respect to their modification and treatment by
dicines. In the following pages the latter method is followed, the
rapeutics of each affection being exhibited in the form of an *Analyti-*
Index to the recognized text-books of the day. Every indication for
use of a drug, or statement regarding its value, is followed by the
ial (in parentheses) of its author: these references enabling the book
be used as an index to the authorities, for more strict differentiation
ween indicated remedies,—while the brief analyses given include
ugh to make each section a complete synopsis of the most advanced
rapeutics of the disease forming its title.

The principal authors to whom references are made, and the various
ials indicating them, are comprised in the following list:

REFERENCES AND BIBLIOGRAPHY.

A.) *Aitken.*—The Science and Practice of Medicine, 7th edition, revised.
Ag.) *Agnew.*—The Principles and Practice of Surgery, Philadelphia, 1878.
B.) *Bartholow.*—Materia Medica and Therapeutics, 6th edition.
Br.) *Brunton.*—Pharmacology, Therapeutics and Materia Medica, 3d ed., 1888.
C.) *Carter.*—A Practical Treatise on Diseases of the Eye, edited by Green.
Cl.) *Clarke.*—A Manual of the Practice of Surgery, New York, 1881.
D.) *Druitt.*—A Manual of Modern Surgery, 12th edition, London, 1882.
E.) *Emmet.*—Principles and Practice of Gynæcology, 3d edition.
El.) *Ellis.*—A Practical Manual of Diseases of Children, 3d edition.
F.) *Fothergill.*—The Practitioner's Handbook of Treatment, 2d edition.
G.) *Goodell.*—Lessons in Gynæcology, Philadelphia, 1882.
H.) *Hamilton.*—Nervous Diseases, their Description, etc., 2d edition.
L.) *Leishman.*—A System of Midwifery, 3d edition, Philadelphia, 1884.
M. & P.) *Meigs and Pepper.*—Diseases of Children, 7th edition.
N.) *Niemeyer.*—A Text-book of Practical Medicine, 9th edition.
P.) *Phillips.*—Materia Medica and Therapeutics, revised edition, 1886.
Pf.) *Piffard.*—Materia Medica and Therapeutics of the Skin, N. Y., 1881.
R.) *Ringer.*—A Handbook of Therapeutics, 11th edition, New York, 1886.
Ros.) *Rosenthal.*—Diseases of the Nervous System, New York, 1884.

(S.) *Stillé.*—Therapeutics and Materia Medica, 4th edition.
(St.) *Sturgis.*—The Student's Handbook of Venereal Diseases, 1883.
(T.) *Tanner.*—An Index of Diseases and their Treatment, 2d edition.
(Tr.) *Trousseau and Pidoux.*—A Treatise on Therapeutics, 9th edition.
(Tt.) *Tait.*—Diseases of Women, by Lawson Tait, New York, 1879.
(W.) *Wood, H. C.*—Therapeutics, Materia Medica, etc., 6th edition.
(Wa.) *Waring.*—Practical Therapeutics, 4th edition, edited by Buxton.

Besides the above named, occasional references are made to other works by the same authors. References will also be found, with names in full, to Anstie, Brown-Séquard, Clymer, Cohen, Da Costa, Fordyce-Barker, Gross, Hammond, Hilton, Lister, Mitchell, Nélaton, Noyes, Nussbaum, Ricord, Roosa, Simpson, Thomas, and others. When a statement is not followed by any reference it is to be understood as coming from the writer of this book.

Abdominal Plethora.

Cathartics. The saline and hydragogue cathartics are of value in congestion of the portal circulation (B.). *Saline Mineral Waters*, especially the purgative saline waters, as Vichy and Saratoga, in plethora of the abdominal viscera (B.). *Grape-cure* has helped many cases, particularly those of hepatic engorgement and sluggish portal circulation; is best used after a preliminary course of powerful mineral waters (P.). *Aliment* is very important. A dry diet is particularly indicated in cases of dyspepsia and hepatic enlargement due to excessive beer-drinking. Avoid much bread, also salted or twice-cooked meats, rich sauces, solid vegetables especially cucumbers, soups and fruits. Biscuits, fresh meat, lemons, fish, fowl and game, may be used. [Compare HEPATIC CONGESTION, OBESITY.]

Prescriptions.

℞. Potassii Bicarbonatis,
Sodii Sulphatis, ... aa ʒ iv.
Dissolve in 1½ pint of Water, and add Acidi Tartarici (cryst.), ... ʒ ij.
Cork quickly and firmly. ⅓d to be taken thrice daily.

℞. Resinæ Podophylli, . . . gr. vj.
Ext. Colocynthidis Co., . . gr. xij.
Ext. Belladonnæ, ... gr. ij.
Fiat massa, et div. in pil. no. xij.
Sig.—One pill every night.

Abortion.

Opium, cautiously in threatened abortion, is often very valuable (Wa.);—the tincture, ♏xx–xxx by rectum (Parvin);—Opium to check uterine action and Ergot to restrain hemorrhage (B.). *Ergot*, small tonic doses give excellent results in threatened abortion (P.). *Tannin*, combined with Opium and Ipecac. (Wa.). *Cimicifuga*, to prevent miscarriage when uterus is irritable and prolapsed (R.). *Savine*, the dried powder of the leaves, gr. xv–xx, thrice daily, one of the most powerful remedies against the hemorrhage indicative of approaching abortion (Wa.);—the tincture in doses of 5 to 10 drops, every ½ to 3 hours, useful against the hemorrhage (P.). *Viburnum Prunifolium*, in threatened and habitual abortion, has a very high reputation. *Aurum Chloride*, to avert the tendency to habitual abortion (B.). *Iron*, with Potassium Chlorate, throughout the pregnancy, when fatty degeneration the cause of habitual abortion (McLane). *Tamponade*, of the cervix uteri, with cotton or sponge, dipped in vinegar or glycerin, when abortion is inevitable and it is desirable to hasten it and restrain hemorrhage. Empty uterus thoroughly with the finger, placenta-forceps liable to do harm (Barker). *Abortifacients*, see pages 48 and 230. Quinine and Ergotin, of each gr. ij in pill every 3 hours, the routine abortifacient of many irregular practitioners. Only by the production of such violent irritation of the abdominal and pelvic organs as generally endangers life, can the pregnant uterus be stimulated to expel its contents (P.). The abortifacient effect of Savine and other drugs cannot be obtained unless by the administration of a quantity sufficient to endanger life (B.).

Prescriptions.

. Ext. Ergotæ Fluidi, . . . ʒ v.
Tinct. Opii Deodorat., . . ʒ iij.
Syrupi Limonis, ... ʒ j.
M. Sig.—A teaspoonful thrice daily.

℞. Acidi Tannici, ... gr. xv.
Pulv. Ipecacuanhæ, . . . gr. xij.
Extracti Opii, ... gr. iij.
Ft. pil. xij. Sig.—One every six hours.

Abscess.

Poultices, to check or to assist in maturation, may be smeared with Belladonna : Opium (R.). *Belladonna*, as plaster to subdue (B.); painted around areola Va.); internally often successful in aborting (R.). *Sulphide of Calcium*, half-rain doses frequently repeated, to abort abscess or to hasten formation of pus 3.); gr. $\frac{1}{10}$ every hour or two, gives striking results in healing large abscesses R.). *Phosphate of Calcium*, in large abscesses (R.). *Mercury and Morphine*, e Oleate locally, diminishes induration due to old abscesses and prevents the rmation of new ones (R.). *Carbolic Acid*, a weak solution as injection after vacuation, also as a dressing (Lister). *Silver Nitrate*, a strong solution in itrous Ether if applied early to adjacent surface will check inflammation (B.). *listers or Iodine*, as counterirritants around or adjacent to seat of disease (R.). *otassium Permanganate*, ʒj to the pint of water, to correct fetor (B.). *Iodine*, e tincture injected after opening large abscesses (R.); especially in scrofulous bscess (Wa.). *Salicylic or Boracic Acid*, as dressings (B.). *Sarsaparilla*, a ery useful remedy in chronic abscess with profuse discharge (P.). *Cod-liver il*, improves and lessens discharge from scrofulous abscesses (Wa.). *Surgical*. pening necessary in all deep abscesses, or when on face, near anus, mammary, r if danger of its opening into an internal cavity. Open with grooved director nd forceps (Hilton). Never open a deep abscess with a plunge. Drainage-ibe may be required, also irrigation of the cavity and pressure (Agnew). Veaning of child necessary in chronic mammary abscess (Gross). Psoas abscess ay result from strain or laceration of muscle, as by heavy lifting, effort to re-ver balance when skating, etc., as well as from spinal disease. Symptoms ten obscure and simulating those of chronic malaria. Early opening by mbar incision necessary; then tonics, good food, and daily irrigation of the vity with an antiseptic solution. [Compare SUPPURATION, CARBUNCLE.]

Prescriptions.

. Syrupi Ferri, Quininæ et
Strychninæ Phosphatum, ℥ vj.
Sig.—A teaspoonful in water thrice daily.
o repair waste from suppuration.

. Syrupi Hypophosphitum, . ℥ vj.
Sig.—A dessertspoonful thrice daily.

℞. Quininæ Sulph., . . . ʒ j.
Ferri Pyrophosphatis, . . ʒ j.
Strychninæ Sulph., . . . gr. j.
Ac. Phosphor. Dil., . . . ʒ ij.
Syrupi Zingiberis, ... ℥ ij.
Aquæ, q. s. . . . . . *ad* ℥ iv.
M. ft. mistura. Sig.—A teaspoonful thrice daily.

Acidity.

Acids, Hydrochloric or Phosphoric before meals; acid wine, a genuine Rhine ne best; Sulphurous Acid ♏v–xxx well diluted; for acid fermentation of starchy ods (R.); acids after meals for alkaline pyrosis (R.). *Tannic Acid*, useful pill, gr. iv with ♏j of glycerin (B.). *Carbolic Acid*, often arrests eructations .). *Alkalies*, after meals for immediate relief, effects only temporary, bicar-nate best (R.): frequent use of alkalies enhances the mischief (B.). *Nux omica*, gtt. ij–iij of tincture before meals, excellent in small doses (B.); espe-ally in acidity of pregnancy (R.). *Pulsatilla*, gtt. v of tincture every 4 hours in id dyspepsia (P.). *Silver Oxide*, extremely useful (B.). *Manganese Oxide*, . x–xx of the purified black oxide relieves (B.). *Kino*, a favorite remedy (B.). *ecacuanha*, in acidity of pregnancy (R.). *Mercury*, gr. ss of gray powder ter die, when acidity with clayey stools (R.). *Bismuth* gives excellent results,

combined with Opium or Morphine, sometimes with Magnesia (R.).
lemon-juice, aërated or old bread, plain biscuits. Avoid new bread, pa
vegetables.

Prescriptions.

℞. Bismuthi Subnitrat., . . . ʒiij.
Acidi Carbolici, ... gr. ij–v.
Mucil. Acaciæ, ... ℥j.
Aq. Menth. Pip., ... ℥iij.
M. Sig.—A tablespoonful 3 or 4 times daily for adults.

℞. Sodii Bicarb., ...
Spt. Ammoniæ Aromat., .
Tinct. Zingiberis, ...
Infus. Gentianæ Co. (U. S.
P., 1870), q. s. . . . ad
M. Sig.—A tablespoonful or

Acne.

Alkalies, internally yield the best results in a number of cases (B
alkaline lotions for cases with seborrhœa (B.). *Borax*, a weak solution
water (ʒj–℥viij), of great benefit locally in acne simplex (Wa.).
Bromide, in moderate doses has proved curative in some obstinate ca
Sulphur, internally and as a lotion. In severe forms an ointment of th
or hypochlorite, ʒij ad ℥j (R.). *Belladonna* locally, is of some service
ing the abundant secretion from the sebaceous follicles (R.). *Arseni*
cases, especially in acne indurata, but often disappoints. Given with b
it prevents the bromic acne (R.). *Phosphorus*, is an excellent subst
arsenic (B.); the compound syrup of the hypophosphites in acne indur
Mercury, in lotion is much employed (B.); a weak lotion of the bichlori
face two or three times daily (R.). The iodo-chloride (gr. v–xv ad ℥) a
application (Fox); or ointments containing the bichloride or biniodide
employed instead of the green soap application (Pf.). *Glycerin*, intern
been used with success (B.). *Berberis*, ♏v of a fresh tincture thrice
the acne of girls at puberty. *Bromide of Arsenic* is adapted to the ma
cases of acne vulgaris (Pf.). *Calcium Sulphide* is indicated in cases chara
by a tendency to pustulation (Pf.). *Bismuth*, locally as a cosmetic (B.)
nesium Sulphate, as a purgative daily before breakfast, in cases of acne
depending on derangement of stomach and bowels (Duhring); the salt, fi
turated, is an excellent dusting-powder for cases of acne rosacea.
sponging for 15 or 20 minutes several times a day, followed by gly
starch to allay irritation (R.); the local use of very hot water is of the
benefit in all inflammatory forms of acne (Bulkley). *Puncturing* each
with a lancet point, followed by very hot water, and ointments of sulphu
ammoniated mercury, etc., diluted (Pf.). *Ergot* is well used in acne
and other forms of acne; a good fluid extract with glycerin and water
ʒss internally per diem (B.). *Diet and Hygiene*, require careful attenti
powerful tonics are often required (Bulkley). *Sapo Viridis*, as an active
in subacute cases, applied every night as long as bearable, then emollie
irritation subsides, when the green soap should be removed (Pf.). [C
SEBORRHŒA.]

Prescriptions.

℞. Potassii Acetatis, ... ℥ss–j.
Tinct. Nucis Vomicæ, . . . ʒij.
Ext. Rumicis Fluidi, ... ℥iv.
Misce. Sig.—A teaspoonful, largely diluted, half an hour before meals.

℞. Potassii Acetatis, ... ℥j.
Spt. Etheris Nitrosi, ... ℥jss.
Ac. Acetici Dil., ... ʒj.
Ext. Taraxaci Fl., ... ℥ij.
Misce. Sig.—A teaspoonful, well diluted, on an empty stomach.

℞. Sulphuris, ...
Glycerini, ...
Aquæ Rosæ, ...
M. Sig.—Lotion.

℞. Hydrarg. Chlor. Corr., . . .
Alcoholis, q. s.
Aquæ Destil., ...
M. Fiat sol. Sig.—A teaspo
¼ pint of water as a lotion, twice

℞. Magnesii Sulphatis, ... ℥jss.
Ferri Sulphatis, ... gr. xvj.
Acidi Sulphurici, ... ʒij.
Aquæ, ... q. s. *ad* ℥viij.
M. Sig.—A tablespoonful in a glass of water before breakfast.

℞. Potassii Acetatis, ... ʒiv–℥j.
Tinct. Nucis Vom., . . . ʒij.
Infusi Quassiæ, *vel*
Tinct. Cinchonæ Co., *ad* ℥iv.
M. Sig.—Teaspoonful in water after meals, as an antacid tonic.

℞. Liq. Potassæ, ... ʒj.
Aquæ Rosæ, ... *ad* ℥iv.
M. Sig.—Apply with a soft sponge twice daily.

℞. Bismuthi Subnit., ... ʒj.
Ung. Hydr. Ammoniat., . . . ℥ij.
Ung. Aq. Rosæ, ... *ad* ℥j.
M. et fiat unguentum.

℞. Hydrarg. Iodo-chlor., . . . gr. v–xv.
Adipis, ... ℥j.
Fiat unguentum. An irritating application, requiring care.

Addison's Disease.

Arsenic, with cod-liver oil, gives the best results (Da Costa). *Iron*, and other tonics are useful, especially a combination of the chloride, glycerin and chloroform (Greenhow). *Phosphorus*, has seemed to exert a beneficial influence (Wilks). *Treatment* must be symptomatic, and is of little use, the disease being always fatal (H.).

Prescriptions.

℞. Tinct. Ferri Chloridi, ... ℥j.
Spt. Chloroformi, ... ℥j.
Glycerini, ... ℥vj.
M. Sig.—A dessertspoonful in water thrice daily.

℞. Quininæ Sulph., ... ʒj.
Ferri Reducti, ... ʒjss.
Ac. Arseniosi,
Strych. Sulph., ... āā gr. iij.
Confect. Rosæ, q. s.
M. et div. in pilulas lx.

Adynamia.

Cinchona or Quinine, with arsenic, for pale, badly-fed town-dwellers (R.); as a general tonic when flesh flabby, skin perspiring (P.). *Arsenic*, for swelled feet of old or weakly persons, and breathlessness from weak heart (R.); tonic in continued doses of gr. $\frac{1}{60}$ to $\frac{1}{12}$ (Wa.). *Nux Vomica*, in adynamia of drunkards. ℞. Tinct. Capsici ʒvj; Tinct. Nucis Vom. ʒij; gtt. xx in water every four hours (B.). *Lime Salts*, the phosphate, when from prolonged town-life or overwork, gr. j, with grain j each of Phosphate of Iron and Carbonate of Lime, for a dose (R.); Hypophosphites, of Lime or Soda, in nervous or general debility (R.). *Iron*, promotes appetite and digestion; gr. j–iij of the Sulphate, or the official iron and aloes pill, or with manganese (B.); anæmic subjects (R.). *Hydrastine*, as substitute for Quinine, to promote appetite and digestion and improve assimilation (B.). *Digitalis or Eucalyptus*, in debility with weak heart-action (B.). *Bitters*, especially Calumba and Gentian, useful for a short time (B.). *Sanguinaria*, when stomach needs stimulation (P.). *Sarsaparilla*, broken-down, syphilitic constitutions (P.). *Alcohol*, is of great value, but has been abused; hurtful when it increases temperature and pulse, dryness of tongue, etc. (B.); a wine with much ether in debility of old age, especially where sleeplessness, indigestion and stomach cramps (R.). *Aliment*, sugar and saccharine fruits, vegetables, oil, milk, cod-liver oil, wine of good body and strength (B.). Porter or rum-and-milk for town-living women (R.). *Sea-bathing* is useful in chronic illness, with much debility (R.). *Turkish Baths*, when debility is caused by the tropics, but caution necessary. When town-dwellers become stout and flabby, are easily tired, suffer from a lack of energy and from mental depression, a course of baths is beneficial (R.). [Compare ANÆMIA, CONVALESCENCE.]

Tonic Prescriptions.

℞. Quininæ Sulph., ... gr. xxx.
Ac. Sulph. Dil., q. s.
Tinct. Ferri Chlor., ... ʒij.
Aquæ, ... *ad* ℥ij.
M. Sig.—A teaspoonful thrice daily.

℞. Tinct. Ferri Chlor., ... ʒiv.
Ac. Phosphor. Dil., ... ʒvj.
Sp. Limonis, ... ℥ij.
Syrupi, ... q. s. *ad* ℥vj.
M. Sig.—A dessertspoonful in water after each meal.

℞. Quininæ Sulph., ... ʒj.
Strychninæ Sulph., ... gr. j.
Tr. Ferri Chloridi, ... ʒv.
Ac. Phosph. Dil., ... ℥ij.
Syr. Limonis, ... *ad* ℥vj.
M. Sig.—A teaspoonful in water thrice daily, in nervous debility.

℞. Ac. Arseniosi, ... gr. j.
Quininæ Sulph., ... gr. xl.
Ferri et Pot. Tart., ... gr. lxxx.
M. Fiant pil. no. xl.
Sig.—One after each meal.

After-pains.

Opium, more certain in action than any other remedy (Wa.); Morphine and Atropine (gr. $\frac{1}{4}$ and gr. $\frac{1}{100}$), combined (B.), hypodermically (Wa.). *Belladonna*, as ointment, much used in France (L.). *Camphor*, gr. x with gr. $\frac{1}{8}$ of morphine, an effective remedy (B.); ℥j in ℥vj of mucilage, tablespoonful doses every hour or two (Wa.). *Chloral*, will stop the pains, but large doses, gr. xx–xl, are necessary (R.). *Chloroform*, the linimentum chloroformi ℥j with linim. Saponis ℥vj, applied on flannel to the abdomen (Barker). *Quinine*, gr. v–x night and morning, with the above chloroform liniment locally, in neuralgic after-pains which do not yield to opiates, the uterus being tender on pressure (Barker). *Gelsemium*, suspends them, large doses (♏xx) necessary (B.). *Cimicifuga*, relieves the pains, and allays general nervous excitement (P.). *Ergot*, is better than cimicifuga (R.). *Poultices*, warm, over the hypogastrium, with soothing injections into the vagina (L.).

Agalactia.

Ricinis Communis, gr. v of extract, or ʒj–ij of strong decoction, daily in water; also the leaves, or an infusion, locally to mammæ (T.). *Gossypium*, an emulsion of the seeds has repute in India, as a galactagogue. A wineglass of the decoction every 20 or 30 minutes (P.). *Pilocarpus*, remarkably increases the secretions (B.). *Tea*, a good black tea promotes the milk-supply. [Compare LACTATION.]

Albuminuria.

Aconite, in incipient, high body temperature (R.). *Lead*, diminishes the albumen (R.). *Turpentine*, gtt. ss–j, every 2 to 4 hours, or one to two drop doses night and morning, of great value in chronic albuminuria without marked symptoms of Bright's disease (P.). *Gallic Acid*, the most efficient agent in the acute form to restrain loss of albumen (B. P.). See Aitken's formula below. *Cannabis Indica*, is indicated when bloody urine (R.). *Chimaphila*, has unquestioned power over albuminuria (P.). *Cantharis*, ♏j every three hours, of the tincture, after the subsidence of acute symptoms, especially when bloody urine (R.). *Fuchsine*, in doses of gr. j–iij, completely arrested albuminuria in many cases with œdema (Bouchut). *Alkalies*, the citrates and acetates as diuretics (R.); the Buffalo Lithia Water of Virginia, is highly recommended. *Nitro-glycerin*, ♏j of a one per cent. solution to dilate the peripheral vessels, relieving the heart and lessening the renal congestion (B.). *Turkish Baths*, benefit by relieving the kidneys of work (R.). *Milk-cure*, with buttermilk, has proved very efficient in many cases (B.). *Chalybeate Waters*, especially those having purgative qualities, are beneficial (B.). [Compare BRIGHT'S DISEASE.]

Prescriptions.

i, ... ʒj–ij.
ici Dil., ... ʒss.
li, ... ℥j.
li, ... *ad* ℥vj.
lesp. thrice daily.
(*Aitken.*)

℞. Mist. Ferri et Ammonii Acetatis
(U. S. P.), ... ℥vj.
Sig.—Teasp. to a tablesp. according to age, well diluted, thrice daily.
(*Basham.*)

Alcoholism.

distressing vomiting, one drop of liquor arsenicalis before break-
sicum, in dyspepsia of chronic alcoholism, and to induce sleep;
tute for the alcohol. Gr. x, with honey (B.). With bromide or
tters to assist in overcoming habit, by removing the distress at
ch. The tinct. in 10-minim doses should be taken shortly before
ever there is depression or craving for alcohol. It obviates the
ing, and promotes appetite and digestion (R.). *Ammonia*, a full
e spirit will often sober a drunkard speedily (R.);—a few drops
niæ, diluted, have prompt action (S.);—ʒj of the aromatic spirit
see formula below. *Quinine*, especially the cinchona rubra,
rrh of drunkards (B.); gr. ij–vj daily to raise the nervous tone
mica, for after stomachal disorders (B.); in tremor of chronic
nuch value (P.). *Bromides*, ʒj every 4–6 hours in the "horrors"
us, in chronic alcoholism, recommended by Anstie (R.). *Opium*,
all (B.);—Morphine with tonics before meals for pain, nausea,
ppetite (R.). *Cocaine*, has been pronounced of great benefit,
tite, inducing sleep and promoting digestion, while it soothes
nduces a feeling of contentment and calm (R.). *Cimicifuga*, is
ul in the treatment of the drunkard's stomach (R.). *Chloral*,
ful, gr. xv–xx, but must be cautiously used with old worn-out
. *Picrotoxin*, small doses for the tremor, gr. $\frac{1}{20}$ repeated (B.).
best substitute for alcoholic stimulants, and extremely serviceable
nens (B.). *Zinc Oxide*, is very useful in chronic alcoholism, to
raving, to relieve the gastric catarrh and lessen the tremor (B.).
Poisoning requires an emetic or the stomach-pump, cold douche
breast, warmth to the feet and limbs. Artificial respiration may
Milk, mucilaginous drinks, and black coffee, are the principal
nilk diet often creates a disgust for alcohol. [Compare DELI-
and VOMITING.]

Prescriptions.

ici, ... ℥ss.
midi, ... ℥ss.
tass. Arsenit., . ♏l.
Nucis Vom., . ℥ij.
niæ Aromat., . ℥iij.
ai, ... *ad* ℥vj.
tura. Sig. — A dessert-
four or five times daily.

---

s Vom., . . . ʒj.
ianæ Co., . . . ʒiij.
, ... ♏vj.
formi, ... ʒj.
. . . . . q. s. *ad* ℥vj.
sixth to be taken 3 or 4
somnia.

℞. Zinci Oxidi, ... ʒj.
Piperinæ, ... gr. xx.
M. Fiant pil. no. xx. Sig.—One pill thrice daily.

℞. Ext. Lupulini Fl., ... ℥j.
Ext. Aromatici Fl.,
Tinct. Capsici, . . } . aa ʒvj.
Mucil. Acaciæ, .
Aquæ Menth. Viridis, . *ad* ℥iv.
Fiat emulsio. Sig.—A teaspoonful or two as required.

℞. Tinct. Gentianæ Co., . . ℥ij.
Tinct. Calumbæ Co., . . ℥ij.
Tinct. Nucis Vom., . . . ♏lxxx.
M. Sig.—A dessertsp. before each meal, for rum-stomachs. (*Loomis.*)

Alopecia.

Cantharides tincture, 1 part to 8 of castor oil, well rubbed into roots of hai night and morning (Wa.). *Arsenic*, ♏v of liq. arsenic. ter die, exercises a mo or less powerful influence (Wa.). *Nitric Acid*, with olive oil, makes a servic able liniment (Wa.). *Pilocarpine*, has a decided influence on the growth of t hair (B.). *Glycerin*, in combination with the above remedies (Wa.). *Sulph Iodide*, has been found very effectual, used internally and externally (Wa *Frequent shaving* may often save the hair in alopecia after illness. Use cle brushes with long bristles, and brush against the natural lay of the hair. [Con pare TINEA.]

Prescriptions.

℞. Ol. Amygdalæ Expres.,
Aq. Ammoniæ, ... aa ℥j.
Ol. Rosmarini, ... ʒij.
Alcoholis, ... ℥ij.
Aquæ Destillat., ... ℥ij.
Mellis Despumat., . . . ad ℥viij.
M. Sig.—Lotion for the hair.
(*Wilson.*)

℞. Tinct. Macis, ... ʒjss.
Olei Olivæ, ... ad ℥ij.
M. Sig.—Lotion for baldness.
(*Hebra.*)

℞. Tinct. Cantharidis, ... ʒjss.
Tinct. Capsici, ... ♏xx.
Glycerini, ... ℥ss.
Spt. Odorat., ... ad ℥vj.
M. Sig.—Hair tonic. (*Gros*

℞. Pilocarpin. Hydrochlorat., gr. j.
Aquæ Destillat., ... ℥j.
M. Sig.—Ten to thirty drops twice da according to age, to improve the growth the hair. (*Barthol*

Amaurosis and Amblyopia.

Arnica, has long been a popular remedy for amaurosis in Germany. Ma noir employed it with much success (P., Wa.). *Rue*, in minim doses night a morning, for dimness of vision from functional amaurotic condition. Elgâjaki sa it produces dimness of vision, and in smaller doses improves the eyesight (F *Strychnine*, may cure, in functional amaurosis from lead, tobacco and alco (B.). Gr. $\frac{1}{40}$ hypodermically (Nagel). Hypodermically in tobacco and tra matic amaurosis, and in progressive nerve atrophy not dependent on inter-c nial disease (R.). *Guaiac*, is advised for cases of amaurosis occurring in pers of a rheumatic diathesis (Wa.). *Santonin*, has given very satisfactory res in amaurosis (Wa.). *Veratrine*, as lotion brushed over eyelids, brows a temples once a day, is often useful, but should not be permitted to touch conjunctiva, or great pain will result. See formula below (Wa.). *Potass Iodide*, in amblyopia from lead-poisoning (Wa.). *Seton*, a small seton in temple kept open for a long period, has been found effectual when other re dies failed (Wa.). Amaurosis and Amblyopia are names formerly much u to denote the various conditions of blindness, before ocular diagnosis bec as exact as it now is. Amblyopia is still used to designate certain impairme of vision not accounted for by any organic changes visible (*Roosa*).

Prescriptions.

℞. Veratrinæ, ... gr. x.
Ætheris, ... ℥ij.
Alcoholis, ... ℥j.
M. Sig.—Use with a brush once a day over eyelids, eyebrows and temples.

℞. Strychninæ Sulphatis, ...
Alcoholis, ...
Aquæ Destillatæ, ... ad
M. Fiat solutio. Sig.—A teaspo thrice daily before meals, when not hypodermically.

Amenorrhœa.

Aconite, sudden suppression from cold or wet feet (B., R., P.). *Pulsatill* sudden suppression, also aconite (B.); often of the greatest value in functi form (P.). *Iron*, when from anæmia, the most frequent cause. Small doses preferred. Solution of acetate, or ferri et ammonii citras (gr. ij), or ferri et strychninæ citras (gr. j), also chalybeate waters. Caution.—Careful diagnosis before giving iron (B.). *Aloes*, when dependent on anæmia (B.); at the periods, with hot pediluvia, friction, etc. (R., P.). *Potassium Permanganate*, gr. j thrice daily increased to gr. ij, is the best of all remedies for bringing back the menses, having specific action on the uterine tissue (R.);—excellent in amenorrhœa from cold feet, and is by far the best emmenagogue. In pill it may explode; best in capsule with powdered elm or liquorice (Parvin). *Manganese Biniodide*, in pill, gr. ij thrice daily, is a very efficient emmenagogue. *Mercury*. The Biniodide is a certain and safe emmenagogue, gr. ⅛ in pill, four times daily. *Oxalic Acid*, is highly praised, gr. ½–¾ in mixture, every hour (Poulet). *Apiol*, when from functional inactivity. First give iron for the blood; next aloëtic purgatives, then apiol (gr. xv) just preceding the period; or a daily dose for a week, or several days before (B.). The best emmenagogue next to Potass. Permang. (Parvin). *Senega*, a saturated decoction of the root, to extent of a pint in 24 hours, during preceding two weeks, advantageous (P.). *Polygonum*, has given excellent results when used in ʒss doses four times daily for a week (B.). *Cimicifuga*, has been recommended (R.); is of very great value (P.). *Arsenic*, combined with iron, when from functional inactivity of ovaries (B.). *Aurum Salts*, from torpor of ovaries (B.). *Ignatia*, in suppression of hysteria (P.). *Cinnamon*, causes a flow of blood to the womb (Goodell). *Indigo*, is considered very efficient, in doses of from ʒj to ʒiv. Larger doses produce nausea and vomiting. *Nux Vomica*, small doses of the extract, of benefit in some obstinate cases (Wa.). *Silver Nitrate*, in substance lightly to the os uteri, at time of expected discharge (Wa.). *Colocynth*, in chlorotic amenorrhœa (P.). *Ergot*, has cured when due to plethora (B.); when anæmia after use of iron (R.); in chlorotic (P.); ♏j every ½ hour for 5 or 6 hours the day before and that of the expected flow, is very efficient when the cessation is not due to anæmia (A. A. Smith). *Senecio Aureus*, seems to have a well-founded reputation. *Rue*, in functional inactivity. Ol. rutæ, ♏j–v (B., P.). *Sanguinaria*, functional amenorrhœa, in absence of plethora (B., P.). *Savine*, general atony. Extractum sabinæ fl., ♏v–x (B., R., P.). *Serpentaria*, with anæmia or chlorosis (B.). *Ammonium Chloride*, for headache (R.). *Sitz-baths*, hot, for six days before period; mustard may be added at period. Often effectual in sudden suppression (B.). *Spinal-ice-bag*, to lower dorsal and lumbar vertebræ; or cold sponging useful (R.). *Electricity*, in atony of uterus and ovaries (B.). [Compare ANÆMIA, CHLOROSIS.]

Prescriptions.

℞. Olei Sabinæ, ... ʒj.
Olei Rutæ, ... ℥j.
Tinct. Polygon. Hydropip., . . . ʒj.
Ol. Amygdalæ Expres.,
Mucil. Acaciæ,
Aquæ Menthæ Pip., ... āā ℥ij.

Fiat mistura. Sig.—A teaspoonful two or three times daily. (*Bartholow.*)

℞. Extr. Aloës Aquosi, ... ʒj.
Ferri Sulph. Exsic., ... ʒij.
Asafœtidæ, ... ʒiv.

Fiant pilulæ 100. Sig.—One pill after each meal, gradually increased to three. (*Goodell.*)

℞. Tinct. Ferri Chloridi, ... ʒiij.
Tinct. Cantharidis, ... ℥j.
Tinct. Guaiaci Ammon., ... ℥jss.
Tinct. Aloës, ... ℥ss.
Syrupi, ... q. s. *ad* ℥vj.

Fiat mistura. Sig.—A tablespoonful thrice daily, in simple atonic amenorrhœa. (*H. C. Wood. Dewees.*)

℞. Quininæ Sulphat., ... ʒjss.
Extr. Nucis Vom., ... gr. xij.
Olei Sabinæ, ... ʒss.
Aloës Socotrin., ... gr. viij.
Cantharidis, ... gr. xxiv.

Fiant pilulæ xlviij. Sig.—One pill thrice daily.

Anæmia.

Nux Vomica, stimulates blood-making organs, and is used as an ad restorative remedies (B.). *Iron*, its chief value is to improve digestic furnishes hæmatin to the blood. The most astringent preparation is t and should be used after meals. Also chalybeate waters (B.). Some st with irritable mucous membrane, require bland preparations. A pale tongue indicates large doses of the perchloride or sulphate (R.). *Ars* adjunct to iron, and where iron cannot be borne, or fails (B.). *Quin* badly-fed town dwellers (R.). *Hypophosphites*, are useful, but should given with iron, cod-liver oil, or stimulants (R.). *Phosphate of Cal* anæmia of growing persons, and of women weakened by rapid child- or excessive menstruation (R.). *Lacto-phosphate of Calcium*, for mothers, or in waste from suppuration (B.). *Acids*, added to purgative tonics to the mucous membrane (R.). *Pepsin*, is recommended by H (B.). *Manganese*, alone not of much use ; is best combined with iron (not, like iron found in the fæces, nor does it cause constipation (Wa.) *vanization*, as aid to remedies (B.). *Cold Sponging*, needs great cau may lower tone by minute degrees (R.). *Diet and Hygiene*, of prime ance. Nourishing, digestible food, in as large quantities as can be assi —milk, eggs, animal broths; afterwards, fish, poultry, game, mutt Moderate daily out-of-door exercise, in pure air, is indispensable. E especially sea-bathing, aids restoration. Wines, often useful. Red wi the best.

Tonic Prescriptions.

℞. Tinct. Ferri Chloridi, ... ʒiv.
Ac. Phosphorici Dil., ... ʒvj.
Spt. Limonis, ... ℥ij.
Syrupi, ... q. s. *ad* ℥vj.

Misce. Sig.—A dessertspoonful in water after meals. To the above may be added ʒij of the Liquor Strychninæ Hydrochloratis of the B.*P. (*Goodell.*)

℞. Hydrarg. Chlor. Corr , . . . gr. j–ij.
Liq. Acidi Arseniosi, ... ʒj.
Tinct. Ferri Chlor., ... ʒiv.
Ac. Hydrochlor. Dil., ... ℥iv.
Syrupi, ... ℥iij.
Aquæ, ... q. s. *ad* ℥vj.

Misce. Sig.—A dessertspoonful in a wineglassful of water after each meal, as an alterative tonic. (*A. H. Smith.*)

℞. Tinct. Nucis Vom., ... ʒijss.
Tinct. Cinchonæ, ... *ad* ℥iv.

M. Sig.—A teaspoonful after each meal.

℞. Tinct. Ferri Chloridi, ... ʒiij.
Potassii Chloratis, ... ʒj.
Liq. Strychninæ (B. P.), . . . ʒj.
Syr. Simplicis, ... ℥iv.
Aquæ Cinnamomi, . . . *ad* ℥iv.

Misce. Sig.—One or two teaspoonfuls after each meal.

℞. Quininæ Sulphatis, ...
Ferri Sulph. Exsic., . . .
Strychninæ Sulph., . . .

Fiant pilulæ xx. Sig.—One pi daily. (*Bar*

℞. Ferri Sulph. Exsiccat.,
Potass. Carbonatis, . . āā .
Syrupi, q. s.

Fiant pilulæ no. xlviij. Sig.— after each meal, gradually incre three. (

℞. Acidi Arseniosi, ...
Quininæ Sulphat., ...
Ferri et Potass. Tart., . . .

M. Ft. pil. no. xxx. Sig.— after each meal.

℞. Pil. Ferri Comp. (U. S.), . .

Sig.—One to three after meals.

℞. Pil. Ferri Iodidi (U. S.), . .

Sig.—One to three after meals.

℞. Massæ Ferri Carbonat., . . .
Acidi Arseniosi, ...
Quininæ Sulphatis, ...

Fiat massa, et div. in pilulas xl. Sig.—One or two thrice daily.

Anæsthesia.

Morphine, subcutaneously before inhalation, diminishes the danger, and lessens the after-pain if an operation is to be performed (Nussbaum); Morphine gr. $\frac{1}{12}$ and Atropine gr. $\frac{1}{125}$, hypodermically, after emergence from anæsthesia, will relieve the nausea and vomiting. A preliminary injection of Morphine lessens the stage of rigidity and spasm, enables a smaller quantity of the anæsthetic to be used with full effect, prolongs the stage of insensibility, prevents shock, and antagonizes the cardiac and respiratory depression (B.). *Atropine*, is decidedly the best antagonist to the respiratory paralysis of Ether, and should be given hypodermically (gr. $\frac{1}{80}$) as soon as alarming symptoms manifest themselves (Amidon). The writer of this book has saved at least four subjects of chloroform-narcosis by the hypodermic use of Atropine after both heart and respiration had apparently failed. *Alcohol*, ℥j–ij of whiskey or brandy, before inhalation, to sustain the heart and prolong narcosis (B.). [Compare pages 80 and 171, *ante*, for the general subject of ANÆSTHESIA, and page 25, for a list of LOCAL ANÆSTHETICS. See also the article ERYTHROXYLON, *ante*, page 209, for the use of Cocaine as a local anæsthetic.]

Aneurism.

Potassium Iodide, in large doses (gr. xv–ʒss), 3 or 4 times a day, gives great relief, and has cured (B.); combined with recumbent position and restricted diet (R.). *Veratrum Viride*, aids surgical expedients; also in large internal aneurisms, with absolute recumbence and a little Opium to relieve pain, vomiting to be avoided (B.). *Ergot*, with recumbent position; favors coagulation of the blood in sac (B.); Ergotin (P.). *Gallic Acid and Iron*, internally, have cured cases of aortic aneurism (Speer). *Chloroform*, inhalation, great dyspnœa (R.). *Plumbic Acetate*, a valuable auxiliary to the more important items of rest, diet and mechanical appliances, gr. iij–v ter die (Wa.); its use limited to the sacculated form (S.). *Electrolysis*, galvano-puncture in deep aneurisms; not very successful (B.). The object sought is the coagulation of blood within the aneurismal sac. Cures have not been attained by this treatment, but in many it has produced great amelioration of the most distressing symptoms (Petit). *Aliment*, milk regimen, for denutrition (B.); a low diet, with absolute rest; Ergotin and Iodide of Potass. for deep aneurisms beyond reach of surgical treatment (B.). *Rest*, in recumbent posture, and light, unstimulating diet, are primary and essential elements in treatment of aneurisms. *Surgical Treatment* includes ligation of the vessels, also pressure by a tourniquet or bags of shot, the operator's fingers, etc., applied to the main artery above the tumor, and the introduction of fine wire into the sac to favor coagulation.

Prescriptions.

℞. Potassii Iodidi, ... ℥j.
Tinct. Veratri Viridis, . . ʒjss.
Tr. Cinchonæ Co., . . . ℥j.
Tr. Cardamomi Co., . . . ℥jss.
Tr. Gentianæ Co., ... ʒss.
Syrupi Simplicis,
Alcoholis, ... āā ℥iv.
Aquæ, ... q. s. *ad* ℥xvj.
Misce. Sig.—℥ss thrice daily. Each dose has gr. xv of Pot. Iod.

℞. Acidi Gallici, ... ʒj.
Ext. Ergotæ, ... gr. xx.
Digitalis, ... gr. xx.
Fiat massa, et div. in pil. xx.
Sig.—One every two hours.

℞. Plumbi Acetatis, ... gr. xxxvi.
Extracti Opii, ... gr. iv.
Confectionis Rosæ, q. s.
Ft. pil. xij. One every four hours.

Angina Pectoris.

Aconite, believed by Gubler to be appropriate, and by Fleming to have been curative in many severe cases resisting other remedies (P.). In cardiac disease its action is uncertain (Br.). *Arsenic*, lessens or prevents paroxysms, if used in the intervals (B., R., Anstie). *Amyl Nitrite*, as inhalation, affords signal relie

(R., B.); unsafe in advanced degeneration of cerebral vessels and fatty degeneration of heart (B.); gives great relief during paroxysms (Br.). *Nitrite of Sodium*, is less rapid in action than Nitrite of Amyl, but is more efficient in preventing return of symptoms (Br.). *Laurocerasus*, as anodyne (P.). *Strychnine*, in the milder forms; very small doses, gr. $\frac{1}{100}$ to $\frac{1}{32}$ (P.). *Glonoinum*, doses of ♏$\frac{1}{100}$ have been used with success (Pf., R.). *Chamomile*, in pseudo-spasms of hysterical persons (P.). *Ether* aborts a mild attack (B.); Sulphuric Ether, in nervous form; a spoonful immediately on commencement of attack will greatly mitigate it (Anstie). *Phosphorus*, often serviceable (R.). *Morphine*, hypodermically, especially in cardiac dyspnœa; strengthens the heart (R.). *Turpentine*, applications, hot, over chest, to mitigate severity of the paroxysms, especially in the aged (Wa.). *Quinine*, when intermittent (Wa.) or when any malarial taint (Br.). *Brandy*, in frequent small doses, with hot bran poultice over heart, and warmth to extremities. *Cocaine*, in doses of gr. ⅕ to ½ thrice daily for two days, proved curative in four very severe cases (Laskevitch).

Anus, Fissured.

Hydrastis, locally, promotes healing (B.). *Rhatany*, as injection, night and morning, after enema in the morning to move the bowels (Pf., Tr.). *Iodoform*, improves, and relieves pain (B.). *Iodo-tannin*, well applied, effective (B.). *Belladonna*, locally, of great service for painful spasms of sphincter (P.). *Opium*, with gall-ointment for fissures of anus; mild purgatives should be simultaneously employed (R.). *Sulphur*, as a mild purgative, to cause soft motions (R.). *Tannin*, ʒj–glycerin ℥ij; introduced on a tent, night and morning, with great advantage (Wa.). *Collodion*, as protective covering (P.). *Potassic Bromide*, with 5 parts glycerin, as local application (R.). *Castor Oil*, as a mild purgative (R.); to keep motions soft (Br.). *Surgical Means*, the most efficient; forcible dilatation of sphincter, or partial division in severe cases, through the mucous membrane, and a few fibres of sphincter.

Prescriptions.

℞. Tinct. Krameriæ, ... ʒj.
Ext. Krameriæ, ... ʒij.
Aquæ, ... *ad* ℥viij.
M. Sig.—One-fourth as injection, night and morning, after using enema.

℞. Sulphuris, ... ℥j.
Pulveris Aromat., ... ʒij.
Confec. Rosæ, ... ʒij.
Misce. Sig.—One-third to be taken at bedtime as a laxative.

Aphonia.

Ignatia, in hysterical women (P.). *Atropine*, in hysterical aphonia, and for fatigue of vocal chords, gr. $\frac{1}{120}$ to $\frac{1}{80}$, morning and evening (B.). *Nitric Acid*, ♏v–x of the dilute acid, for hoarseness of singers, in fatigue of vocal chords, and when stomachal (B.). *Benzoin*, the tincture by inhalation in laryngeal catarrh (Br.). *Oil of Rue*, as inhalation in chronic catarrh (Br.). *Nitrate of Uranium*, as spray in very chronic catarrh (Br.). *Alum*, gr. x–℥j aq., as spray, in chronic coughs and hoarseness (R.). *Borax*, a piece the size of a pea allowed to dissolve in the mouth (R.). *Glycerin of Tannin*, locally, in chronic inflammation of the throat (R.). *Sulphurous Acid*, by inhalation, spray or fumigation, in clergyman's aphonia (R.). *Ipecacuanha*, wine, as spray, when congestion of vocal chords (R.); in laryngeal catarrh (Br.). *Ammonium Chloride*, vapor inhaled, of great value in catarrhal aphonia (Wa.). *Turkish Bath*, at commencement of a feverish cold (R.); in acute laryngeal catarrh (Br.). *Galvanism*, localized, the best means for hysterical aphonia.

Prescriptions.

℞. Liq. Ammoniæ, ... ℥j.
Aquæ, ... ʒj
M. Sig.—A teaspoonful in a pint of hot water for each inhalation.

℞. Acidi Nitrici Dil., ... ʒij.
Tinct. Calumbæ, ... ℥j.
Aquæ, ... *ad* ℥iv.
M. Sig.—A dessertsp. in a winegl. of water thrice daily.

Aphthæ.

Potassium Chlorate, the best remedy. Solution of gr. x to the ℥, as wash, alone or with borax (Br.), and gr. x to xx by the stomach (B.). *Borax*, with honey, or as glycerin of borax, frequently used (R.); crystals allowed to dissolve in the mouth (W.). *Sulphurous Acid*, as solution, strong or diluted, locally (R.); dilute as spray (B.). *Mineral Acids*, formerly much used (B.). *Mercury*. Hydr. cum creta in small doses to remove the indigestion on which aphthæ often depends (Br.), borax being used locally, when aphthæ exist in the mouth (Wa.). *Copper Sulphate*, a weak solution painted over mucous membrane (R.). *Potassium Iodide*, gr. j–v–℥j aquæ, locally (B.). *Salicylic Acid*, one part (dissolved in alcohol) to 250 of water (R.). *Quinine*, gr. j every 2 or 3 hours, in infants (B.), especially when consequent on diarrhœa (Br.). *Coptis*, the infusion has repute in New England (B.). *Bismuth*, freely to parts (B.); as a local application (Br.). *Glycerin*, will sometimes cure (R.). *Rhubarb*, the compound powder of rhubarb, to remove indigestion (Br.);—is highly useful in small doses (Wa.).

Prescriptions.

℞. Ac. Sulphurosi, ... ʒij.
Aquæ, ... *ad* ℥ij.
M. Sig.—Mouth-wash, or use as a spray.

℞. Pulv. Rhei Co., ... ʒij.
Sacch. Lactis, q. s.
Triturat. et div. in pulv. xij. Sig.—One thrice daily.

Apoplexy.

Aconite, full strong pulse; hot, dry skin, plethoric cases. The best remedy (P.);—to lower blood-pressure and prevent further hemorrhage, where the pulse is strong and the arterial tension high (Br.). *Elaterium*, as a purgative; a large dose (gr. ij) in suppository with soap, or as an injection into large bowel (P.). *Croton Oil* as purgative, a drop may be put on the back of the tongue (Br.);—♏¼ or ⅓ each hour (R.). *Colocynth*, as a derivative purgative (Br.); appears to act well (P.). *Cold Water*, often harmful, though frequently used. Injurious when face pale, surface cool, circulation depressed (B.). *Electricity*. Very mild galvanic currents to promote absorption. Caution necessary, especially if much headache and vertigo (B.). *Diet and Hygiene*, of great importance in patients subject to apoplexy. Avoid stimulating food and drink (especially beer), overeating, excitement, haste, exposure to hot sun, heated rooms, etc. At no subsequent period should a full animal diet or the use of undiluted wines be indulged in (A.). *Diagnosis*. Should be carefully differentiated from drunkenness, with which it is often confounded. [Compare CEREBRAL CONGESTION.]

Prescriptions.

℞. Tinct. Aconiti, ... ♏x.
Aquæ Cinnamomi, . . . *ad* ℥ij.
M. Sig.—A teaspf. every ¼ hour for 2 hours, then every half-hour.

℞. Ext. Colocynthidis Co., . . gr. xx.
Olei Tiglii, ... ♏ij.
Fiat massa, et div. in pil. iv.
Sig.—One pill as required, until free purgation ensues.

Appetite.

Ignatia, will correct diseased appetite (P.); especially in hysterical subjects (Br.). *Anthemis*, will stimulate the appetite. *Bitters*, to stimulate the appetite (R.). *Food* should be savory and well cooked. *Habits* require examining into, when lost appetite complained of. *Fluorides* of *Sodium* or Potassium will produce almost total anorexia, and may be employed with advantage in bulimia (Da Costa). [Compare DYSPEPSIA.]

Prescriptions.

℞. Gentianæ, Quassiæ,
Cinnamomi, ... āā ʒij.
Sig.—Put into a pint of boiling water, and when cold, strain; take a winegl. thrice daily as an appetizer.

℞. Anthemidis,
Quassiæ, ... āā ʒj.
Sig.—Put in a pint of boiling water, and when cold, strain; take a winegl. thrice daily before meals as an appetizer.

Ascites.

Digitalis, of the greatest service, except where aortic regurgitation and cardiac hypertrophy (P.); fresh infusion best (R.);—its action increased by combination with squill and pil. hydrargyri (Br.). *Arsenic*, when from feeble heart, and in old age (B.). *Apocynum Can.*, an active diuretic (P.). *Copabia*, excellent in hepatic dropsy (Br.). *Jaborandi*, has given good results (B.). *Stillingia*, in ascites due to hepatic changes (B.). *Jalap*, the compound powder, with podophyllum, the most generally approved hydragogue purgative (B.). *Elaterium*, to produce free watery evacuations. Cautiously in debilitated subjects. Contraindicated when gastro-intestinal irritation or inflammation. Is depressant (B.). *Milk-diet*, successful; an ancient practice; causes profuse alvine and urinary discharges (B.);—sometimes very useful when the kidney action is inadequate (Br.). [Compare DROPSY.]

Prescriptions.

℞. Resinæ Copaibæ, ... ʒiij.
Alcoholis, ... ʒv.
Spt. Chloroformi, ... ℥j.
Mucil. Acaciæ, ... ℥ij.
Aquæ, ... q. s. *ad* ℥xij.
M. Sig.—A tablesp. thrice daily.

℞. Hydrarg. Chlor. Mitis,
Pulv. Digitalis,
Pulv. Scillæ, ... āā gr. vj.
Fiat massa, et div. in pil. vj.
Sig.—One pill thrice daily, in ascites from hepatic changes.

Asthenopia.

The proper glasses; cold douche; rest of eyes. *Atropine*, systematically instilled, to prevent strain, and control spasm of the accommodation ([illegible]). [Compare MYOPIA.]

Asthma.

Aconite, in spasmodic (P.); often averts the attack, if given at commencement; useful also in the asthma following coryza and sneezing in children (R.). *Ipecacuanha*, the wine as spray to the fauces, sometimes useful in severe bronchial asthma, but not of much service in genuine asthma (R.); nauseating and emetic doses in spasmodic form (B.). *Lobelia*, gtt. x of the tincture every ¼ hour during paroxysm; ♏x ter die, with additional doses at night, in bronchitic asthma when worse at night. Cautiously if heart disease (R.). Often gives permanent relief (B.). *Arsenic*, as cigarettes as well as by internal administration (B.). One drop of liquor arsenicalis ter die, in attacks from bronchitis, local irritation, etc., allied to hay fever (R.). *Belladonna*, relieves paroxysm when expectoration abundant, skin cool and moist (B.). Internally in large doses, also in cigarettes (Br.). Atropine hypodermically is more efficient, [illegible] gr. $\frac{1}{60}$ at bedtime to abort morning paroxysm (B.). Large doses required, but very satisfactory (R.) Was much valued by Dr. Salter and M. Sée (P.). *Potassium Iodide*, when from acute bronchial catarrh, gr. xv-xx each 2, 3, or 4 hours (B., R.). The best medicament to suppress the asthmatic attack, in bronchial asthma, is iodide of potassium and chloral (Lazarus). Is the specific in asthma, if any drug can be so called; should be given with Lactucarium (Sée). *Cocaine*, hypodermically, is used with the best results, even where other remedies failed to relieve (Mosler). The leaves of the coca-plant make the best cigarettes for asthma (Nachtigal). *Pilocarpine Hydrochlorate*, gr. ⅙ in water, at bedtime, promptly and effectively relieves, in cases of bronchitic asthma with hypertrophic rhinitis. In some of nine years' standing it gave permanent relief apparently (Wyss). *Nux Vomica*, in nervous subjects (B.); in spasmodic asthma, often of great benefit (P.). *Chloral*, may arrest paroxysm (B., R.). *Chloroform*, inhaled from warm water. Anæsthetics relieve, but increasing doses required, leading to habit (B., R.). *Ether*, full dose, may avert a mild attack (B.) *Amyl Nitrite*, inhaled, quickly checks spasmodic asthma (B., R.). *Antimony*, in an affection of children like asthma. Dissolve a grain of tartar-emetic in half a pint of water, and give a teaspoonful of this every ¼ hour for the first hour, then hourly. If vomiting induced, lessen the dose (R.). *Coffee*, a small cup of very strong coffee often useful in a paroxysm (R.). Asthmatics should not use it as a beverage (P.). *Stramonium*, twenty grains of the dried leaves or ten of the powdered root may be smoked. Datura tatula sometimes better. Stramonium preparations often bad. Asthmatics advised to grow the drug themselves (R.). *Grindelia*, gives relief in spasmodic form (B.); three grains of extract thrice daily to prevent attacks, or ♏xx–xxx of liquid extract every half-hour or hourly from onset of paroxysm (R.). *Ethyl Iodide*, very valuable in spasmodic form, and lessens liability to subsequent attacks. ♏v–xx thrice daily by inhalation (B.). *Cannabis Indica*, has been useful (R.). *Sulphurous Acid*, by inhalation, spray, or fumigation (R.). *Morphine*, hypodermically, quickly cuts short a paroxysm (B.); in some cases morphine will induce a paroxysm (R.). *Apomorphine*, gr. $\frac{1}{10}$ hypodermically, has been found effective; or gr. $\frac{1}{12}$ every 3 or 4 hours in camphor water, with or without morphine or ipecacuanha. *Tobacco*, smoking sometimes relieves (R., P.). *Asafœtida*, has been recommended (R.); palliative only (P.). *Colchicum*, in gouty subjects (R.). *Bromides*, relieve but soon lose effect (B., R.). *Eucalyptus*, smoked with stramonium, belladonna, tobacco (B.). *Quinine*, after acute symptoms subside, as antipyretic to succeeding fever and restorative tonic (B.). *Potassium Nitrate*, the inhalation of fumes of burnt nitre paper will sometimes avert a paroxysm. Different methods of preparation useful for different cases (R.). *Oxygen*, when no heart disease (R.). *Silver Nitrate*, sometimes injected into trachea (R.), *Chamomile Oil*, has been found very serviceable (P.). *Sanguinaria*, is very useful in humid asthma, and occasionally so in the spasmodic form (R.). *Galvanism* of pneumogastric often relieves; + pole beneath mastoid process; — pole to epigastrium. Faradism of no use (B.). *Prophylaxis*, avoidance of exciting causes, especially indigestible food, wet, damp, and sudden changes of temperature. Attention to the stomach will do most for many asthmatic patients. An important point is to take the heaviest meal early in the day, and very solid food after 2 P.M. Shower-bath and out-of-door exercise, not, however, to a fatiguing extent (R.). In special cases operative treatment of the nose and naso-pharynx is required (Lazarus).

Prescriptions.

Arsenical Cigarettes.

℞. Sodii Arseniatis, ... ℥ss-j.
Aquæ Destillatæ, ... ℥j.

Moisten unsized white paper, and roll into cigarettes, each containing gr. ¼ to gr. j of the salt. Two or three of these to be inhaled daily. (*Bartholow.*)

℞. Ext. Grindeliæ Fluidi, . . ℥ss.
Ext. Lobeliæ Fl., ... ʒij.
Ext. Belladonnæ Fl., . . . ʒj.
Potassii Iodidi, ... ℥iij.
Glycerini, ... ℥iij.

M. Sig.—A dessertspoonful as required.

℞. Belladonnæ Fol., ... ʒj.
Stramonii Fol.,
Hyoscyami, ... āā ʒss.
Extracti Opii, ... gr. iij.
Aquæ Lauro-cerasi, q. s.

Dissolve the opium in the water, and moisten the leaves therewith. When dry, roll into twelve cigarettes. Smoke two to four daily. (*Trousseau.*)

℞. Tinct. Sanguinariæ,
Tinct. Lobeliæ,
Ammonii Iodidi, . . . āā ʒj.
Syr. Tolutani, ... ʒvj.

M. Sig.—A teaspoonful every 2, 3 or 4 hours, in humid asthma. (B.)

℞. Chart. Potass. Nitratis, . . . j.
Burn in a close room and inhale the fumes.

℞. Ammonii Bromidi, ... gr. clx.
Ammonii Chloridi, ... gr. xc.
Tinct. Lobeliæ, ... ʒiij.
Spt. Etheris Comp., . . . ℥j.
Syrupi Acaciæ, ... *aa* ℥iv.
M. Sig.—A dessertspoonful in water, every hour or two, for the paroxysm.
(*Pepper.*)

℞. Spt. Etheris Comp., . . . ℥j.
Tinct. Belladonnæ, . . . ʒj.
M. Sig.—A teaspoonful ter in die.

℞. Tinct. Lobeliæ, ... ℥j.
Ammonii Iodidi. . . . . ʒij.
Ammonii Bromidi, ... ʒiij.
Syrupi Tolutani, ... ℥ij.
M. Sig.—A teaspoonful every 1, 2, 3 4 hours.
(B

℞. Spt. Etheris Compos.,
Liq. Morph. Sulph.
(gr. j ad ℥j), ... āā ℥j.
M. Sig.—A teaspoonful every half-h or hour in the paroxysm.

℞. Potassii Bromidi, ... ℥j.
Potassii Iodidi, ... ʒss.
Aquæ Cinnamomi, ... ℥iv.
M. Sig.—A teaspoonful in water every half-hour or hour.
(B.)

Astigmatism.

Atropine, a weak solution to aid examination of eye by dilating pupil, and paralyzing accommodation (B.). *Duboisine*, as substitute for atropine, has more rapid action, with shorter duration of effects, and less conjunctival irritation. *Glasses*, of suitable form, cylindrical in simple astigmatism, bi-cylindrical in mixed astigmatism. *Pray's Test Letters*, to determine degree and direction of the defect (C.).

Atheroma.

Phosphorus, in minute doses, for atheroma, with cod-liver oil (B.). *Arsenic*, often of great value in atheroma, especially where imperfect action of kidneys (Br.); indicated when there are puffy eyes, drowsiness, intellectual torpor (B.). *Quinine*, gr. iij–x daily, in atheroma, with advantage (B.). *Ammonium Bromide*, in atheroma, to promote absorption of deposit (Wa.). *Digitalis*, may be useful in general capillary atheroma; cautiously! (W.). *Cod-liver Oil*, with phosphates, hypophosphites, or the lacto-phosphate of lime, in combination (B.). [Compare ANEURISM.]

Atrophy.

Cod-liver Oil, has proved beneficial (Wa.). *Olive Oil*, by inunction, every 12, 6, or 4 hours, successfully employed (Wa.). *Arsenic*, has had remarkable success in muscular atrophy (Tr.). *Electricity*, in progressive muscular atrophy, the induced current very strong at first, then weaker as improvement; interrupted currents from vertebral column and plexuses to nerves of affected muscles; in more extended forms, the constant current to the nerves, the induced to the muscles (Ros.). *Massage* removes the waste products and restores the muscular power (Br.). [Compare EMACIATION, LOCOMOTOR ATAXIA.]

Balanitis.

Mercury, Hydr. Chlor. Corr. gr. j to ℥jss aquæ calcis, as lotion, if not much inflammation (Br.). *Oil*, on linen, to inflamed part, beneath foreskin, which must be again drawn forward; strict cleanliness. *Astringent Lotions*, Alum, Sulphate of Zinc, with warm water injections (Br.). *Lime-water*, the best lotion if much inflammation (D.). *Tannin*, in alcohol, equal parts, as dressing after washing with a weak solution of common salt. *Carbolic Acid*, a 5 per cent. solution, on cotton rag after washing, thrice daily, is generally sufficient. [Compare PHIMOSIS, GONORRHŒA.]

Bed-sores.

Alcohol, Brandy, or eau-de-cologne, to harden skin of parts exposed to pressure (R.); as wash to parts threatened (B.). *Glycerin*, or glycerin-cream, rubbed over the parts exposed to pressure, after washing, morning and evening, is one of the best preventives (R.). *Alum*, ℥ss, whites of four eggs, Tinct. Camphoræ, ℥ij, an excellent application (B.). *Charcoal*, sprinkled over the black slough, which is then covered with poultice (R.). *Galvanic Couplet*, of zinc and silver, connected by a copper wire; one element on sore, the other on adjacent part (B.). *Silver Nitrate*, a solution (gr. xx–℥j) to be painted on the threatened but unbroken skin, as soon as it becomes red, will prevent sores; if Nitrous Ether solution be used, 5 grs. to the oz. is enough (R.). *Iodoform*, dusted over sores (R.). *Linen*, air-dried better than that which is ironed or mangled, by reason of its greater softness.

Biliousness.

Podophyllum, acts as a cathartic (B.); corrects deficient secretion of bile, especially in children and infants; gr. $\frac{1}{20}$ to $\frac{1}{10}$, every 6 hours, to correct white or clayey stools; also in general hepatic derangement (P.). *Aconite*, in occasional doses, improves the effect of Podophyllum (R.). *Mercurial Cathartics*, act only as purgatives, Calomel gr. j–x, or Pil. Hydrarg. gr. v–x; Mercury as purgative restricted to cases where there is excess or deficiency of bile (B.). Frequent small doses of gray powder for deficiency (R.); Calomel gr. iij, followed by ʒij each of Rochelle and Epsom Salts, when the tongue is heavily coated and furred (Gross). *Yellow Oxide of Mercury*, in doses of gr. $\frac{1}{60}$ to $\frac{1}{30}$, in trituration with sugar of milk, exceedingly efficient in many disordered conditions of the alimentary canal and its appendages (Schaffer). *Bryonia*, is worthy of commendation in the ordinary bilious headache with vomiting, and in general hepatic derangement known as sluggish liver (P.). *Hydrastis*, gtt. v–xv fl. ext. daily before meals, when with chronic gastric catarrh and dyspepsia (B.). *Mineral Acids*, before meals, Hydrochloric Acid and Pepsin after meals, in atonic dyspepsia (B.). *Stillingia*, when deficient biliary secretion (B.); may be used in place of Mercury (Br.) *Ammonium Iodide*, gr. j–iij in water each 2, 3, or 4 hours, when catarrh of duodenum and biliary ducts (B.) *Ammonium Chloride*, is much employed in Germany for hepatic derangements, and with good success. *Euonymus*, is considered very efficient by many practitioners in cases of hepatic dyspepsia, or "bilious attacks," so called. *Manganese*, gouty subjects. *Rhubarb*, as a cholagogue. *Aloes*, with constipation. *Angostura*, is suitable to worst forms of bilious fevers (P.). *Calumba*, is of benefit in many forms (P.). *Alkalies*, and their laxative salts, when bilious state, with uric acid diathesis (B.). *Milk-cure*, in obstinate cases; buttermilk or skimmed milk often agrees best (B.). [Compare DYSPEPSIA, HEPATIC CONGESTION, DUODENAL CATARRH.]

Prescriptions.

℞. Ext. Stillingiæ Fl., . . . ʒ v.
Tinct. Aloes, ... ʒ ij.
Tinct. Nucis Vom., . . . ʒ j.
M. Sig.—Twenty drops in water thrice daily. (B)

℞. Ext. Euonymi, ... ʒ ss.
Ext. Hyoscyami, ... gr. xv.
Ext. Gentianæ, ... gr. vj.
Fiat massa, et div. in pil. xij.
Sig.—One pill every other day.

℞. Hydrarg. Oxidi Flavi, . . gr. j.
Sacch. Lactis, q. s.
Triturat. et div. in chart. xlviij.
Sig.—One powder dry on the tongue twice daily.

℞. Massæ Hydrargyri,
Ext. Colocynthidis Co., āā gr. iij.
M. et. div. in pil. ij.
Sig.—Take at once, and follow in a few hours with a saline cathartic.

Bladder, Irritable.

Belladonna, in nocturnal incontinence, due to relaxation of sphincter, or irritable mucous membrane (B.); gtt. v–xx of tinct. every 3 or 4 hours give gradual but sure relief (P.). *Cantharis*, in women, without acute inflammation (B.); on coughing (R.). *Benzoic Acid*, when from enlarged prostate, removes fetor of urine; also renders phosphatic or alkaline urine acid (P.). *Ammonium Benzoate*, may be used instead of Benzoic Acid (Br.). *Gelsemium*, the best remedy for irritable bladder of women of hysterical type, with constant desire to urinate (B.). *Cubebs*, is often successful in women, but Cantharides generally better (B.); is of especial value when vesical catarrh present (P.). *Aqua-puncture*, strange to say, has been used with considerable success (B.). *Cannabis Indica*, in spasm of the bladder, and in irritable conditions of that organ is generally useful. *Eucalyptol*, is often very efficient, but frequently fails, ♏ij on sugar two or three times a day. [Compare CYSTITIS, DYSURIA, ENURESIS, LITHIASIS, CALCULI, URINARY DISORDERS.]

Prescription.

℞. Tinct. Gelsemii, ... ʒss.
Sodii Bromidi, ... ʒiij.
Extr. Tritici Fluidi, . . . ℥iss.

Sig. A teaspoonful in water every four hours, for irritable bladder.

Bladder, Paralysis of.

Cannabis Indica, in retention from spinal disease (R.). *Ergot*, in paralytic dysuria, especially when sensation of bladder being only partially emptied (P.); when incontinence from paralytic sphincter, and in paralysis from over distention (B., Wa.). *Arnica*, has proved curative (P.). *Strychnine*, gr. $\frac{1}{60}$ to $\frac{1}{30}$ useful (B.). *Cantharides*, often given with excellent effect, when bladder atonic (Wa.). *Galvanism*, may greatly benefit (B.); electro-magnetic current from the bladder to the spine, of great use (Wa.).

Blepharitis.

Pulsatilla, internally and externally (P., B.). *Mercury*, after detaching crusts, rub in brown citrine ointment (B.); should be diluted with vaseline or simple ointment (Br.). *Tannin*, powdered, or tannic acid solution, gr. j–x to the ℥ (B.). *Alum*, after acute symptoms subside (B.); a solution, gr. viij–℥j aquæ, every ¼ or ½ hour, an excellent application (R.). *Hydrastis*, as lotion, very serviceable (P.). *Bismuth*, equal parts of the subnitrate and glycerin to the inflamed surface, in ciliary and glandular blepharitis (Wa.). *Ergot*, the fluid extract locally, gives excellent results (B.).

Prescriptions.

℞. Aluminis, ... gr. x.
Aquæ Rosæ, ... ℥ij.
M. Sig.—Lotion for the eyelids. (B.)

℞. Unguent. Hydrarg. Nitrat., ʒj.
Vaselinæ Albæ, ... ʒiij.
M. Sig.—Ointment for the margins of the eyelids.

Boils.

Belladonna, as plaster, to subdue inflammation, or use lint wetted with Atropine, gr. iv, Aquæ Rosæ, ℥j (B.); with Glycerin locally, to allay pain; internally often successful (R., Wa.). *Sulphides*, in small doses (gr. $\frac{1}{10}$ to ½ of Calx Sulphurata) every hour or two, or *Sulphurous Mineral Waters* will abort or mature, and aid to expel pus (B., R.); of no use in the boils of diabetes (R.). *Aromatic Sulphuric Acid*, for the tendency, gtt. x–xv, in plenty of water thrice daily. *Silver Nitrate*, gr. v–xx–℥j of nitrous ether, painted over adjacent part, to abort; specific if used early (B., R.). *Arsenic*, long-continued, for succesion of boils (B.); to lessen tendency to recurrence (Br.). *Opium*, a thic xtract locally (R.). *Camphorated Alcohol*, smeared over boils in the earlies tage, then, when skin dry, smear with camphorated oil, to abort (R). *Sodium Phosphate*, the best remedy for the systemic condition which produces boils R.). *Carbolic Acid*, undiluted, on a thread passed through centre of boil while ecent, will abort it. *Counter-irritation*, by blisters or Iodine around the boil R.). *Collodion*, at papular or pustular stage (R.). *Salicylic Acid*, locally to destroy the parasitic organism (staphylococcus pyogenes), on which boils de- pend. See formula below. (Heitzmann.) *Hydrarg. Biniodide*, the oint. ocally, with Calcium Sulphide, gr. j daily in divided doses internally, leaves ittle to be desired so far as treatment is concerned. *Poultices*, to assist maturation and allay pain, may be smeared over with Belladonna or Opium (R.). [Compare ACNE, CARBUNCLE.]

Prescriptions.

℞ .Calcis Sulphurat., ... gr. iij.
Sacch. Lactis, q. s.
Triturat. et. div. in chartas xxx.
Sig.—One powder every 2 hours.

℞. Acidi Salicylici, ... ʒ ij.
Emplast. Saponat., . . . ℥ ij.
Emplast. Diachyl., . . . ℥ j.
Sig.—Ointment. (*Heitzmann.*)

Bone, Diseases of.

Iodine, in scrofulous affections of bones, should be used locally, with the odide of iron or cod-liver oil internally, nutritious diet, wine, out-door exercise Wa.). *Cod-liver Oil*, in scrofulous affections, may be relied on if perseveringly used, and accompanied by good hygienic conditions (Wa.). [Compare CARIES, EXOSTOSIS, NODES, PERIOSTITIS, RACHITIS, SPINA BIFIDA, etc.]

Breath, Fetid.

Potass. Permang., gr. j–℥j aquæ rosæ, as a wash for the mouth (B.). *Chlorine*, as solution of chlorinated lime, to remove fetor (B.). *Carbolic Acid*, a ilute solution, as wash for mouth (W.). *Camphor*, is used as a corrective (R.). ook for bad teeth, disordered digestion; in very offensive cases, gangrenous ngs; cleanliness of teeth and mouth are essential. *Thymol*, in solution, as a outh-wash, is very efficient in removing the odor of tobacco from the breath.

Prescriptions.

Calcis Chlorat., ... ʒ iij.
Aquæ Destillatæ,
Alcoholis, ... āā ʒ ij.
Olei Rosæ, ... ♏ iv.
I. Sig.—A teaspoonful in a glassful of
er as a lotion for the mouth. (B.)

℞. Acidi Salicylici, ... ʒ j.
Liq. Ammonii Acet., . . . ℥ iij.
Glycerini, ... ℥ j.
Aquæ, q. s . . . . . *ad* ℥ vj.
M. Sig.—A tablespoonful every six hours. (*Robinson.*)

Bright's Disease, Acute.

onite, should be given immediately on the appearance of the nephritis in atina (R.); as a diuretic, advocated (P.). *Cantharis*, after subsidence of cute stage, one-minim dose every 3 hours will stop the hematuria (R., *Digitalis*, (infusion ℥ss) the best remedy in renal dropsy from acute amative nephritis (B.); only diuretic as long as dropsy lasts (R.). *Can- Indica*, as diuretic; is especially useful when bloody urine (R.). *Eu- us*, sometimes effective; cautiously, or it will aggravate symptoms (B.). *amus*, in irritable kidneys (P.); may be substituted for Belladonna *Jaborandi*, is much used (Da Costa); large doses very depressant to rt, but ♏v–x of the fluid extract every half-hour or hour will produce g. It may be combined with tinct. of Digitalis (A. A. Smith); or the *of Pilocarpine*, to excite skin when symptoms urgent, gr. $\frac{1}{12}$ to $\frac{1}{8}$ for adult (B.). *Turpentine*, in drop or half-drop doses every 2 to 4 hours, controls the dropsy in a remarkable manner (P.); hot turpentine epithems are serviceable, but may increase the action of the kidneys (Wa.). *Belladonna*, has often proved useful (P.); may be used with benefit (Wa.). *Jalap*, the compound powder is the most generally useful purgative, used in the early morning, to produce free watery evacuations, when uræmic symptoms supervene (B.). *Gallic Acid*, checks albuminuria (B.). [See ALBUMINURIA, for formula.] *Juniper*, as diuretic; often aggravates (P.). *Poultices*, large, of linseed meal, made light and soft as possible, beneficial (Wa.). *Cupping*, in lumbar region, ameliorates acute desq. nephritis, and congestion of the kidney (B.); cupping, or leeches over the loins, with opiates freely, diluents, and demulcents, with rest and an antiphlogistic regimen, often suffice (Wa.). *Vapor-bath* or *Warm Pack*, to increase the action of the skin (B.). *Diluents*, as milk, and cream-of-tartar in solution, should be used freely to relive the congestion and remove obstructions from the tubules (B.). *Iron*, after the acute symptoms have subsided, as a tonic, the most suitable preparation being Basham's mixture, the now official Mist. Ferri et Ammonii Acetatis, in ℥ss doses thrice daily (Da Costa). [Compare ALBUMINURIA, HEMATURIA, URÆMIA.]

Prescriptions.

℞. Potassii Acetatis, ... ʒ ijss.
Infusi Digitalis, ... ℥ iij.
Infusi Juniperi, ... ℥ iij.
M. Sig.—A tablesp. every 2 to 4 hours as a diuretic.

℞. Pulv. Jalapæ Comp., . . . ʒ iv.
Div. in chartulas no. iv.
Sig.—One in water before breakfast.

℞. Mist. Ferri et Ammonii Acetatis, ... ℥ viij.
Sig.—A tablesp. thrice daily, as soon as hematuria disappears.

℞. Ext. Pilocarpi Fl., ... ℥ss.
Vini Ipecac., ... ʒ jss.
Mucil. Acaciæ, ... ℥ j.
Aq. Cinnamomi, . . . *ad* ℥ ij.
M. Sig.—A teasp. every four hours until free diaphoresis.

Bright's Disease, Chronic.

Milk-cure, has been very successful; skim-milk alone for some time, then gradual addition of other diet (B.). *Water*, in large draughts, as diuretic, when excretion of solids is deficient (Br.); hot fomentations to lumbar region (B.). *Lead*, diminishes the albumen (R.). *Gallic Acid*, to lessen the albuminuria. See under ALBUMINURIA for formula (A.). *Hydrastis*, lessens excretion of albumen (B.). *Potassium Bitartrate*, to prevent dangerous accumulations in cellular tissue or important cavities, also to draw off effete matters; care must be used, as it is a brisk purgative and is weakening (R.); in form of "cream-of-tartar lemonade," an agreeable diuretic (B.). *Jalap*, the compound powder occasionally, as derivative cathartic, to relieve the kidneys (Da Costa). *Nitro-glycerin*, ♏$\frac{1}{100}$ to dilate peripheral vessels, relieves the heart and the renal congestion, and diminishes albumen (B.). *Fuchsin*, in doses of gr. v[illegible]ij–xv daily, used with considerable success in different stages of the disorder, and was well borne (Riess). *Oleum Erigerontis*, lessens albumen, lowers vascular tension, improves general condition, and favorably influences the headache, nausea, and other uræmic symptoms (B.). *Tartrates*, excellent diuretics (R.). *Cod-liver Oil*, is very useful (R.). *Baths*, warm and Turkish, when uræmic symptoms and dropsy; discretion needful, as baths may weaken (R.). *Cannabis Indica*, as diuretic when bloody urine (R.). *Turpentine*, sometimes given in very small doses as a diuretic, and to check hematuria (R.); half-drop or drop doses every 2 to 4 hours very successful in dropsy with albuminous urine depending on non-desquamative disease of the kidneys. *Jaborandi*, in uræmia is very satisfactory (B.); large doses very depressant to the heart (A. A. Smith). ♏xx of the fluid extract ter in die if the urine decreases much (Da Costa)

n, to improve digestion and correct anæmia; the tinct. of the chloride or
ct. ferri acetatis preferred (B); in chronic tubular nephritis with cardiac
pertrophy the mist. ferri et ammonii acetatis, ℥ss ter in die, with an occa-
nal vapor-bath (Da Costa). *Chimaphila*, has power over various forms of
phritic disease, especially when albuminuria present (P.). *Eucalyptus*, in
ronic desquamative nephritis, cautiously used will cause improvement (B.).
aterium, for the dropsy, as a derivative cathartic; must be cautiously used
.). *Bromides*, are useful in the convulsions (R.). See URÆMIA. *Potassium*
dide, has improved some cases, which were possibly due to syphilis (R.).
urum, the chloride in pill, gr. $\frac{1}{30}$ to $\frac{1}{20}$ ter in die, persistently, in the chronic
erstitial nephritis, to arrest hyperplasia of the connective tissue; may be
mbined with *Arsenic*, which has a similar influence (B.). *Mercuric Chlor-*
e, acts in the same manner, gr. $\frac{1}{20}$ bis die (Da Costa). *Food*, should be nour-
ing, particularly suitable are milk, eggs and rare beef (Da Costa). *Buffalo*
thia Water, of Virginia, has many advocates. [Compare DROPSY, URÆMIA.]

Prescriptions.

(Compare those under Bright's Disease, Acute.)

. Strychninæ Sulphatis, . . . gr. ¼.
Tinct. Ferri Chloridi, . . . ℥ss.
Acidi Acetici, ... ʒjss.
Curaçoæ, ... ℥j.
Liq. Ammonii Acetat., . *ad* ℥vj.
M. Sig.—A tablesp. every 6 hours, fol-
wed by a glass of water. For the anæmia.

℞. Tinct. Nitro-glycerini, . . . ʒj.
Sig.—One drop, gradually increased to five, four times daily on sugar. (B.)

℞. Auri et Sodii Chlor., . . . gr. jss.
Aquæ Destillatæ, ... ℥iv.
Solve. Sig.—A teasp. ter in die.

Bronchiectasis.

Quinine, the most useful remedy as a tonic (B.). *Phosphates*, are undoubt-
ly useful, so also are the *Hypophosphites* (B.). *Chlorine* in solution as a
mulant and deodorizer, or as inhalation to lessen fetor (Br.). *Palliation* of
cough and expectoration, with care of the general health of the patient, is
that can be accomplished. [Compare EMPHYSEMA.]

Bronchitis, Acute.

conite, gtt. ss–j every hour (B.); in catarrh and bronchitis of measles (R.).
rtar Emetic, first stage, gr. $\frac{1}{20}$ to $\frac{1}{12}$, especially if cough is violent (B.);—
j to a quart of water, a teasp. of this every hour for the wheezing and
gh of slight bronchitis in children (A. A. Smith);—gr. ¼ to ½ every 2 or
ours (R.). *Ipecacuanha*, as wine, when expectoration profuse, and difficult
expel (R.); dry stage (P.); *Ipecac*, when secretion is scanty and dry; *Squill*,
en the secretion, though copious, is difficult to expel (Brunton). *Lobelia*,
expectorant (B.); for paroxysmal dyspnœa (R.). *Sanguinaria*, after subsi-
ce of acute symptoms, as expectorant (B.); very successful (P.). *Quinine*,
reduce temperature (R.). *Colchicum*, useful when gouty diathesis (P.).
ium. Morphine and quinine combined, or Dover's powder, to abort an
ck; also with expectorants to allay cough (B.). Frequent and violent
ghs, without obstructed oxidation; also to check excessive secretion (R.).
sudorific very useful, grs. x of Dover's powder (P.). *Carbolic Acid*, as
ay, a 5 per cent. solution with steam atomizer, prompt and efficient. *Apo-*
phine, the hydrochlorate in doses of gr. $\frac{1}{30}$ every 3 hours, the best of all
ectorants. *Cimicifuga*, an excellent expectorant, and useful when acute
ptoms have subsided (B.). *Nitric Acid*, ♏x of dilute acid relieve (B.).
fœtida or *Ammoniacum*, the last best, in bronchitis with wheezing of old
ple (R.). *Asafœtida*, is an excellent stimulant of respiration, especially
en the capillaries have become clogged with the products of inflammation,
d suffocation seems imminent. Here also the *Cold Bath* is a means of
abling the patient to expel the mucus, the equal of which has not been yet

advanced. The cold bath may be used for even very young infants, and should be but momentary (W.). *Ammonium Carbonate*, when the expectoration is profuse, and the condition low (R.). *Ammonium Acetate*, from its sudorific action is always indicated, especially in children (Dessau). See formulæ below. *Cubebs*, very useful, especially when secretion copious and system relaxed (P.). *Copaiba*, after subsidence of the fever, the most serviceable expectorant, but nauseous (B.). *Counter-irritants*, mustard as poultice (large), with linseed or oatmeal, or both, very useful (R.). *Iron*, *Lead*, *Zinc Oxide*, to check profuse secretion (R.). *Heat*, to chest by linseed poultice, of great service. *Diet* should be light and in liquid form. *Temperature* of atmosphere in room about 80° F., and the air moistened by steam. [Compare COUGH.]

Prescriptions.

℞. Antim. et Pot. Tart., . . . gr. ij.
Liq. Ammonii Acet., . . . ℥iv.
Spt. Etheris Nitrosi, . . . ʒj.
Tinct. Aconiti, ... ʒss.
Syr. Simplicis, . . q. s. *ad* ℥vj.
M. Sig.—A teaspoonful every 2 or 3 hours. In first stage.

℞. Liq. Ammon. Acetat., . . ʒiv.
Spt. Etheris Nitrosi,
Syr. Ipecac., ... aa ʒiss.
Syr. Senegæ, ... ℥j.
Syr. Limonis, ... ℥j.
M. Sig.—A teaspoonful every 3 hours, for children. (*Dessau.*)

℞. Tinct. Aconiti, ... ♏viij.
Aquæ Cinnamomi, ... ℥j.
M. Sig.—A teaspoonful every ½ hour for 2 hours, then every hour. In acute inflammatory form.

℞. Vini Ipecac., ... ʒij.
Liq. Potassii Citratis, . . . ʒiv.
Tinct. Opii Camphorat.,
Syr. Acaciæ, ... aa ℥j.
M. Sig.—Tablesp. ter die. In first stage of ordinary acute bronchitis. (*Da Costa.*)

℞. Ext. Cimicifugæ Fl., . . . ℥ss.
Tinct. Opii Deodorat., . . ʒj.
Syr. Tolutani, ... *ad* ℥ij.
M. Sig.—A teaspoonful every 4 hours. (B.)

℞. Tinct. Sanguinariæ,
Tinct. Lobeliæ, ... aa ʒj.
Vini Ipecac., ... ʒij.
Syrupi Tolutani, . . q. s. *ad* ℥iv.
M. Sig.—A teasp. every 3 hours. (B.)

℞. Apormorph. Hydrochlor., . gr. [illegible]
Ac. Hydrochlor. Dil., . . . ♏iij.
Syrupi Senegæ, ... ℥v.
Aquæ Destillat., ... ℥j.
M. Sig.—A teaspoonful every 2 hours. For a child of 3 years as expectorant. Should be put up in a blue bottle.

℞. Ext. Eriodyctii Fl., ... ʒvj.
Ext. Senegæ Fl., ... ℥iv.
Syr. Pruni Virginian., . . . ℥ij.
Aquæ, ... q. s. *ad* ℥iv.
M. Sig.—Teaspoonful every 3 hours.

Bronchitis, Capillary.

Ipecacuanha, as emetic, preferred to tartar emetic in capillary bronchitis of very young or very old (B.); as wine, when expectoration profuse and difficult to expel (R.). In very young infants should be used in place of antimony (M. & P.). *Squill*, as expectorant, may be used with benefit (Wa.). *Antimony*, sulphurated, gr. $\frac{1}{12}$ in combination with Dover's powder, every 2 or 3 hours, when the temperature very high, and pulse full and strong. Must be stopped as soon as nausea and vomiting begin (M. & P.). *Lobelia*, for paroxysmal dyspnœa (R.). *Ammonium Carbonate*, when expectoration profuse and strength diminishing; in severe bronchitis or broncho-pneumonia of children, especially when prostrate and livid (R.); has probably a specific action on the diseased tissue and its products (Clymer). *Ammonium Iodide*, in small, rapid doses, often gives great relief to the catarrhal process (Da Costa); often gives the most astonishing relief (B.). *Ammonium Muriate*, gr. ij every 2 hours, either alone or with potassic chlorate (Clymer). *Serpentaria*, in capillary bronchitis of children gives excellent results (B.). *Turpentine*, one of the best stimulants when vital powers are depressed and peripheral circulation feeble (B.). *Cam-*

phor, to allay cough and promote expectoration (B.). *Hydrocyanic Acid*, for cough and tendency to spasm. *Hydrarg. Subsulph.* effective as emetic (B.). *Mustard*, as poultice or bath, useful (R.);—the most important part of the treatment (M. & P.). *Poultices*, to encircle the whole chest in children (R.). A jacket of cotton-wool around the chest. *Steam*, by inhalation, may be impregnated with sedatives, or with carbolic acid;—is of great importance (M. & P.). *Quinine*, in that form of capillary bronchitis occurring in tropical climates, and where marked debility (M. & P.). *Stimulants*, are often necessary, especially in the suffocative form, and where marked prostration (M. & P.). *Emetics*, are necessary when suffocative symptoms become prominent. [Compare COUGH.]

Prescriptions.

℞. Ext. Serpentariæ Fl., . . . ℥ss.
Ammonii Carb., ... ℥ij.
Syr. Tolutani, ... ʒjss.
M. Sig.—A teasp. every 2, 3, or 4 hours. (B.)

℞. Quininæ Sulph., ... gr. vj.
Ac. Sulph. Dil., ... ♏xij.
Syr. Simplicis, ... ℥ss.
Aquæ, ... ℥ijss.
M. Sig.—A teasp. every 2 hours to child of 2 or 3 years; older children require more quinine. (M. & P.)

℞. Liq. Ammonii Acet., . . . ℥ss.
Syr. Ipecac., ... ʒj.
Liq. Morp. Sulph.
(gr. j *ad* ℥j), ... ♏xl.
Syr. Acaciæ, ... ℥j.
Aquæ, ... ʒjss.
M. Sig.—A teasp. every 2 hours for a child 2 years old. When surface pale and expression languid, skin cool. (M. & P.)

℞. Ammonii Iodidi, ... ʒj–ij.
Ammonii Carb., ... ʒij–iij.
Syr. Glycyrrhizæ, ... ℥ij.
Syr. Tolutani, ... ℥ij.
M. Sig.—A teasp. every 2 or 3 hours.

Bronchitis, Chronic.

Antimony, when expectoration copious and difficult to expel (R.). *Arsenic*, where emphysema, in cigarettes (B.). [See *ante*, ASTHMA, for formula.] *Sulphur*, gr. v–x, in severe cases, with abundant discharge, especially where constitutional debility (R.). *Sulphurous Acid Gas*, inhalations, or the acid in form of spray, sometimes beneficial (B., R.). *Lobelia*, for paroxysmal dyspnœa (R.). *Ammonium Chloride*, combined with stimulating expectorants, such as Serpentaria, Sanguinaria, or Eucalyptus (B.);—when secretion is thick and abundant, may be applied by an atomizer (R.). *Carbolic Acid*, as inhalation of spray, 1 part to 100 of water; may be combined with tincture iodine (B., R.). A 5 per cent. solution in steam atomizer as inhalation. *Hydrastis*, fluid extract, locally and internally (B.); of great value internally and externally in chronic coryza (P.). *Senega*, especially in the aged (R.). *Iodine*, by inhalation, sometimes used (R.);—the *Iodides*, especially the iodide of ammonium, are very serviceable in combination with expectorants (B.). *Colchicum*, in gouty subjects (R.). *Balsams of Peru*, and Tolu, when copious secretion of pus (R.). *Ammonia*, inhalation, to lessen expectoration (R.). *Oleum Anthemidis*, in pulmonary catarrh with excessive secretion and difficult expectoration, a very useful remedy, ♏ij–iv (P.). *Ammoniacum*, the mistura, with chloride or carbonate of ammonium, efficient in the bronchitis of old people, with wheezing and abundant secretion (R.). [See BRONCHORRHŒA, for formula.] *Benzoin*, ʒj of the compound tincture to boiling water, as inhalation; eases cough and lessens expectoration (R.). Sometimes used by atomization (B.). *Phosphates*, for the resulting cachexia (B.). Phosphate of lime (R.). *Serpentaria*, as stimulant. *Alum*, powdered, dusted over surface (B.). *Silver Nitrate*, locally (gr. v–℈j–℥j) on sponge probang (B.). *Camphor*, to allay cough and promote expectoration (B.). *Sumbul* has decided efficacy (P.). *Opium*, with expectorants, to allay cough (B.). When frequent and violent cough, without any signs of obstructed oxidation; also to check excessive secretion (R.). *Codeine*, gr. ⅙ every 3 to 6 hours, when other opiates are not well borne (P.). *Ethyl Iodide*, by inhalation, is very valuable by reason of its local influence, ♏v–xx thrice daily (B.). *Grindelia*, an excellent expectorant, and especially when cough is troublesome (B.). *Strychnine*, as a respiratory stimulant and to check the reflex vomiting (B.). The syrup of the phosphates of iron, quinine, and strychnine. *Squill*, in chronic forms with tenacious sputa, but not when fever or acute inflammation (R.). The Pil. Ipecac. cum Scillâ, of the Br. Ph. in 10-grain doses night and morning, is a most useful remedy (Br.). *Tar*, diminishes the secretion and allays the cough (P.); gr. ij in pill every 3 or 4 hours in chronic paroxysmal winter cough (R.). *Digitalis*, when interstitial pneumonia and general anasarca (B.). *Eucalyptus*, valuable in chronic cases of broncho-pulmonary catarrh (B.). *Gallic Acid*, useful in some forms of chronic broncho-pulmonary catarrh (B). *Iron*, with free expectoration, mistura ferri composita, or better, the phosphate of iron, quinine, and strychnine (B). To check profuse bronchial secretion (R.). *Myrtol*, in fetid bronchitis, of great value (Gubler). *Copaiba*, when purulent secretion (R.);—for profuse secretion, the best of all expectorants, but nauseous (B.). *Cubebs*, when profuse expectoration, has similar remedial influence (B.). [See BRONCHORRHŒA, for formula.] *Terpine Hydrate*, gave immediate and curative results in cases of long-standing and obstinate bronchitis, which had resisted all other treatment; gr. xlviij, in Glycerin, q. s. ut. ft. solutio, Syr. Lactucarii, q. s. *ad* ℥ij, of which a teasp. every 3 hours (Boyland). *Terebene* is proving very valuable; requires an equal weight of light carbonate of magnesium to suspend it. *Koomiss-cure*, possesses great value (B.). *Cod-liver Oil*, a teaspoonful ter die after meals, of great service, if continued (B); to control expectoration (R.). *Poultices*, made large, of hot linseed meal to cover the chest, when congestion of lungs. *Olive Oil*, inunctions to chest, has soothing and strengthening effects. *Diet*, nutritious, and stimulants necessary when great prostration. Koomiss is an excellent article of diet. [Compare COUGH, EMPHYSEMA.]

Prescriptions.

℞. Ext. Eucalypti Fl., ... ℥j.
Ammonii Chloridi, ... ʒij.
Ext. Glycyrrhizæ, ... ʒij.
Syrupi Tolutani, ... ℥iij.
M. Sig.—A teasp. 4 to 6 times daily.

℞. Tinct. Sanguinariæ . . . ʒj.
Ammonii Chloridi, . . . ʒj.
Syrupi Tolutani, ... ℥ij.
Spt. Etheris Nitrosi, . . . ℥ss.
Aquæ, ... ℥iijss.
M. Sig.—Tablesp. p. r. n.

℞. Syrupi Scillæ, ... ℥ss.
Tinct. Opii Camph., . . . ʒij.
Ammoniaci, ... ʒss.
Syrupi Tolutani, ... ʒx.
M. Sig.—A teasp. p. r. n.

℞. Ammonii Carbonat., . . . gr. xl.
Infusi Serpentariæ, . . . ℥iv.
M. Sig.—A tablesp. every 3 hours.

℞. Ammonii Chloridi, . . . ʒiij.
Syrupi Picis Liquidæ, . . ℥vj.
M. Sig.—Tablesp. 4 times daily.

Bronchorrhœa.

Ammonium Iodide, often improves the condition, especially if used with arsenic (B.). *Oil of Eucalyptus*, of great utility (B.); ♏ij ter die on sugar, or see formula above. *Sulphurous Acid Gas*, as inhalations, or the sulphurous acid as spray, sometimes improve (B.). *Lead Acetate*, as astringent, to restrain secretion (B.); gr. j–ij every 2 hours. *Petroleum*, crude, in capsules, has been administered with rapid amelioration as the result (Blache). *Grindelia*, an efficient remedy (B.). *Iodine*, as liniment, over front and back of chest (R.). *Spinal Ice-bag*, to restrain excessive secretion (R.) *Quinine*, and the *Phos-*

phates, also *Cod-liver Oil*, as restoratives (Wa.). *Copaiba*, the most serviceable expectorant, but nauseous (B.); when copious secretion of pus (R.). *Cubebs*, has remedial effect in chronic bronchial affections with profuse expectoration (B.). *Asafetida*, is of great benefit (B.). *Turpentine*, an excellent remedy when fetid expectoration; may be used internally (♏v) or by inhalation from atomizer. *Terpine Hydrate*, seems to be even more efficient than turpentine, in doses of gr. x–xx daily. *Carbolic Acid*, internally (♏j), and by spray (gr. v ad ℥j aquæ), often of great utility (Da Costa). *Benzoin*, by inhalation, for its local influence. *Myrtol*, is largely eliminated by the lungs, and is a most valuable agent in bronchorrhœa and fetid bronchitis, acting as a stimulant and antiseptic (Gubler); dose ♏ij in capsules (Br.). [Compare COUGH.]

Prescriptions.

℞. Copaibæ,
Syrupi Tolutani, . . āā ℥ss.
Spt. Ætheris Nitrosi, . . . ℥j.
Aquæ Menth. Pip., . . . ʒij.
M. Sig.—A teasp. every 4 hours.

℞. Copaibæ Bals. Tolutan.,
Pulv. Acaciæ, ... āā ℥ss.
Ac. Sulph. Aromat., . . . ʒss.
Aquæ Destillat., ... ℥vj.
M. Sig.—Tablesp. bis vel ter in die.

℞. Ammonii Chloridi, . . . ʒj.
Mist. Asafœtidæ, ... ℥iv.
Misce. Sig.—Tablesp. as required.

℞. Potassii Iodidi, ... ʒj.
Ac. Nitrici Dil., ... ʒiij.
Tinct. Belladonnæ, . . . ʒj.
Ac. Salicylici, ... ʒj.
Aquæ Camphoræ, . . *ad* ℥iv.
M. Sig.—Dessertsp. in water 3 or 4 times daily, for fetid bronchitis.

Bruises.

Arnica, the infusion very useful as an external application for bruises and cuts; also an excellent internal remedy for internal bruises, shake, falls, blows, or shock; ♏v–x every 2 or 3 hours (P.); in bruises, sprains, etc. (Wa.) *Aconite*, the liniment locally to painful sprains and bruises (Wa.). *Capsicum*, a strong tinct. applied with gum, said to act like a charm on discolored bruises (R.). *Sulphurous Acid*, a solution, constantly applied (R.). *Oil of Bay*, as stimulating liniment (P.). *Opium*, the tincture with linimentum saponis (ʒj to ℥j) diligently rubbed in two or three times a day, affords great relief (Wa.).

Bubo.

Mercury, necessary in the indurated buboes diagnostic of syphilis (Ricord): the powder of calomel locally applied for indolent buboes refusing to heal after opening (H.) *Nitric Acid*, indolent and broken bubo (R.). *Sulphides*, are less useful in maturating than in the case of ordinary boils or abscesses (R.); to check suppuration (St.). *Iodoform*, locally, has proved useful (Wa.). *Iodine*, applied to produce vesication around a bubo, relieves inflammation (R.); freely every day, with rest and compression, to cause absorption (St.). *Silver Nitrate*, lightly to surface, to stimulate indolent buboes (Wa.). *Potassio-tartrate of Iron*, 30 parts to 250 aquæ destil., three tablesp. daily; also as lotion to sore (Ricord); phagedena (St.). *Tartar Emetic*, gr. j every two hours reduces inflammation in many cases (Wa.). *Ice*, greatly relieves (B.). *Surgical*.—Open freely with a bistoury when suppurating; if pus is virulent, the open bubo is a chancroid, and must be treated as such (Keyes). *Pressure*, by compressed sponge under a spica bandage, or a shot-bag, the best local treatment for indolent bubo (Keyes); in all cases cleanliness, rest in recumbent posture, emollient poultices. *Diet*, should be generous, with cod-liver oil, in phagedenic bubo. The treatment of *Syphilitic Bubo* is that of general syphilis, local measures are useless, and no treatment called for until a general eruption appears (Keyes). [Compare CHANCROID, SYPHILIS.]

Bunion.

Iodine paint, or *Emplastrum Hydrargyri*, for indolent form, thick but not tender (D.). *Rest*, fomentations, and anti-arthritic remedies for thickened bunion; burst it by pressure if recent and sac thin (D.). [Compare BURSITIS.]

Burns and Scalds.

Carbolic Acid, 1 part to 30 of lin. calcis, or 1 part to 6 of olive oil; the latter speedily relieves pain, and promotes healing without suppuration (Wa.); 1 part to 10 of olive oil, applied on layers of cotton batting, the best application for burns of all degrees. *Boracic Acid*, a saturated watery solution, used with great success by Lister (B.). *Lead Carbonate*, white lead paint, an excellent application to burns of small extent (B.). *Salicylic Acid*, ʒj–℥viij ol. olivæ is an efficient local application (B.). *Collodion*, flexible, to burns of first degree (B., R., P.). *Phytolacca*, relieves pain (B.). *Lime*, as lime-water and oil, equal parts (R.); or lime-water with linseed oil, a favorite application (P.). *Rhus Toxicoden.*, externally ʒ to the pint, in superficial but extensive burns (P.). *Cantharis*, the tincture diluted with 40 parts of water and applied on rags, is a most excellent application. *Sodium Carbonate*, in solution as lotion, immediately relieves pain and promotes rapid healing. *Turpentine*, in dangerous cases, where great constitutional depression (P.); as wash to severe burns, then locally basilicon ointment mixed with turpentine (B.). *Cotton-wool*, to allay pain and exclude air (P.). *Warm Bath*, immerse for some days (R.); exclusion of air the main indication (H.) *Pinus Canadensis*, the concentrated extract, painted on freely, relieves the pain effectually.

Prescriptions.

Lime and Linseed.

℞. Olei Lini, ... ℥vij.
Aquæ Calcis, ... ℥viij.
M. Sig.—Apply on sheet lint, and cover with oiled silk.

℞. Sodii Carbonatis, ... ℥vj.
Aquæ, ... Oiij.
M. Sig.—Apply freely for 3 days on old cloths or lint.

℞. Iodoformi, ... ʒj.
Cetacei, ... ʒj.
Ext. Conii Alcohol, . . . gr. xl.
Acidi Carbolici, ... gtt. x.
M. Sig.—Spread on lint and cover the parts therewith.

℞. Pulv. Carbonis Ligni, . . ℥viij.
Sig.—To be dusted thickly over the burned parts.

Bursitis.

Iodine, painted on outside, after removal of fluid with aspirator (D.); after blistering (Wa.). *Blisters*, in rheumatic enlargement of bursæ, are almost indispensable for a rapid cure (Wa.). *Fomentations*, with rest, to relieve pain and swelling. If unavailing, a crucial incision into the bursa, care being taken not to open the capsule of the knee (D.). *Excision*, when chronic, tumor hard, resisting other measures (C.).

Cachexiæ.

Lime, the phosphate, in scrofulous affections and anæmia (Wa.); in phthisis, and affections marked by mal-nutrition (B.). *Iron*, in splenic, syphilitic, and strumous, and especially in all anæmic states; also in the malarial and phthisical; chalybeate waters (B.). The ammonio-citrate the best tonic in the cachexia of gastric ulcers, especially in chlorotic females (Wa.). *Arsenic*, a prompt remedy in the malarial cachexia; also in cancerous of real value (Wa.). *Hydrastine*, in paludal and splenic cachexiæ, stands in high esteem (B.). *Nitric Acid*, is adapted to the cachexia following acute disease or intemperance; also as alterative after long course of mercury (Wa.). *Potassium Iodide*, in constitutional syphilis, and resulting affections of bones and skin (Wa.). *Mercury*, in the syphilitic; but its utility much questioned (Wa.). *Aurum*, in cancerous, mercurial, and syphilitic cachexiæ, especially when bones, glands, and oculo-nasal mucous membrane affected. *Phosphates*, in bone diseases, wasting, bronchitic, leucorrhœic, etc. (B.). *Arnica*, in very developed cachexiæ, has excitant action on nervous system (Wa.). *Eucalyptus*, a serviceable tonic and stimulant in cachectic states generally (B.). *Manganese*, the syrup of the iodide of iron and manganese in anæmic, syphilitic, strumous, malarial, cancerous, etc. (B.). *Grape-cure*, often modifies most happily many conditions (P.). *Air*, in good condition, an important element (B.). *Water*, the Turkish bath and wet pack as aids to remedial action, in plumbic, mercurial and paludal (B.). *Oils and Fats*, to promote constructive metamorphosis in many cachexiæ, especially cod-liver oil (B.); the latter a most valuable remedy in scrofula, phthisis, atrophy, tubercular and jail cachexiæ, anæmia, etc. (Wa.). *Massage*, has been productive of remarkable results in many forms of cachexiæ (B.). *Aliment*, of prime importance (B.). [Compare the various titles, ANÆMIA, SCROFULA, SYPHILIS, etc., and the formulæ for tonics, on pages 484 and 488, *ante*.]

Calculi, Biliary.

Chloroform, is supposed by some to act as a solvent in 20- to 60-drop doses every 3 or 4 hours; it cannot act as a solvent, but undoubtedly affords some relief (B.); as an inhalation it may be used to relieve the pain of the paroxysm (Br.). *Ether and Turpentine*, equal parts of each, ʒj once daily for a year, is Durande's solvent remedy; is not solvent, and as an anodyne inferior to morphine or chloral (B.). *Morphine*, gr. ¼ with *Atropine* gr. $\frac{1}{120}$, hypodermically, the best anodyne for the pain and vomiting during the paroxysm (Br.). *Chloral*, sometimes relieves the pain (R.). *Counter-irritants*, as mustard poultices to relieve the pain during the paroxysm (Br.). *Olive Oil*, ℥ij at night, followed next morning by 3 or 4 seidlitz powders an hour apart, efficient in facilitating the expulsion of accumulated gall-stones. *Nitro-muriatic Acid*, as bath, found useful in India to relieve the pain and promote expulsion of the calculus, ℥iij of the acid to a gallon of water (Scott). *Sodium Phosphate*, in ʒ doses before each meal for several months, to prevent recurrence (B.); should be given in plenty of water (Br.). *Sodium Salicylate*, increases the secretion of bile and renders it more watery. It is therefore indicated in cases where there is a tendency to the formation of gall-stones (Br.). *Succinate of the Peroxide of Iron*, hydrated, contains a large proportion of nascent oxygen, and is given in teaspoonful doses after meals for several months, and resumed at intervals afterwards, to prevent reformation of the calculi (Buckler). *Diet*, is important; withhold all starches, sugars and fats, also malt liquors and spirits; moderate exercise out of doors, lean meats, eggs, fish, fruits and succulent vegetables to be used freely. *Mineral Waters*, the alkaline are useful, especially Vichy, which is deemed of great benefit. [Compare COLIC, JAUNDICE.]

Prescriptions.

℞. Succinat. Hydrat. Ferri Peroxidi, ... ℥jss.
Aquæ, ... ʒvjss.
M. Sig.—Teasp. after each meal for several months.

℞. Spt. Etheris Comp., . . . ʒij
Liquor. Magendie, . . . ♏xxx.
Syr. Zingiberis, ... *ad* ℥j.
M. Sig.—Teasp. doses, an hour apart, until pain is relieved.

Calculi, Renal and Vesical.

Alkalies, especially potassium salts, if long continued will effect solution of uric acid calculi (R.); sodium salts should not be used (B.). *Potassium Citrate*, in large doses for bloody urine containing uric acid crystals (R.): the citrate and carbonate of potassium are the most desirable solvents for uric acid gravel (Sir H. Thompson). *Potassium Tartra-borate*, if long used, is very efficient as a solvent for uric acid calculi (B.). Potassium salts are much more efficient than those of Lithium as solvents for uric acid (Prof. Rogers). *Alkaline Mineral Waters*, those rich in potassium preferred, especially Vichy (B.). *Ammonium Benzoate*, long-continued will dissolve phosphatic calculi (B.). *Ammonium Biborate*, will prevent attacks of colic where uric-acid calculi, in 20-grain doses every two hours until free urination, then gr. 15 thrice daily in a glass of flaxseed tea. *Magnesium Boro-citrate*, is a good solvent of uric acid calculi (Madsen). *Lithium Citrate*, to promote oxidation (Da Costa). *Hydrangea*, in decoction, used by the Cherokees in all calculous affections with uniform success (Butler). *Lead Acetate*, gr. ½ to the ℥ of distilled water injected into the bladder to prevent formation of phosphatic calculi, or a solution of *Dilute HCl Acid*, ♏ij–iij to the ℥ (Sir H. Thompson). *Nitric Acid* very dilute, as injection for phosphatic calculi (R.); gtt. j to the ℥, as injection into bladder in chronic cystitis and phosphatic deposits (B.). *Cotton-root*, in decoction, as a demulcent for strangury and gravel (P.). *Castor Oil*, of value as a purgative (P.). *Calumba*, to relieve the vomiting (P.). *Counter-irritants*, as mustard-poultices, or turpentine stupes, to relieve pain of the paroxysm (R.). *Anæsthetics*, for the same purpose (B.) *Morphine*, hypodermically, as an anodyne and to relieve the vomiting (B.). *Hot Fomentations*, to alleviate spasm and pain while calculus is passing. *Diet.* Restrict the use of sugar in any form or combination, also fats and alcoholic beverages. Fresh, green vegetables may be used freely, also skimmed milk or buttermilk. Mineral waters, preferably Vichy, Friedrichshall and Carlsbad. Frequent abstinence from animal food. Lemon-juice and soft water in large draughts, are useful. *Surgical Measures.* Lithotomy or Lithotrity for removal of stone from bladder. Solvents are of no use except for a very small calculus, and even then a considerable time must be occupied in the process. No operation in surgery more certainly safe, rapid and successful than lithotrity (Sir H. Thompson.) [Compare COLIC, LITHIASIS, OXALURIA, etc.]

Prescriptions.

Magnesium Boro-citrate.

℞. Magnesii Carbonat., . . . ʒj.
Sodii Biborat.,
Acidi Citrici, ... āā ʒij.
Aquæ Bullientis, ... ℥viij.
M. Sig.—Tablespoonful 3 or 4 times daily. (B.)

Potassium Tartra-borate.

℞. Potassii Bitartratis, . . . partes iv.
Ac. Borici, ... partem j.
Aquæ, ... partes x.

By heating the above together, the salt is obtained as a white powder, of which gr. xx in a large draught of water 3 or 4 times daily.

Cancer.

Arsenic, in cancer of stomach, diminishes pain and checks vomiting; also in scirrhus of stomach and epithelioma; is believed to retard the growth of uterine cancer (B.). Arsenious acid, pure or with starch, as a caustic; enough should be used to set up active inflammation (R.). *Belladonna*, locally and internally (♏v–x), of great benefit as palliative in severe pains of cancer (P.). *Conium*, as poultice, and internally to relieve pain (R.). Is particularly applicable to pain of cancer (P.). As palliative (Wa.). *Hydrastis*, has a renewed interest (Pf.). *Carbolic Acid*, undiluted, to sore, and injected beneath it, limits and retards (B.); pure, as anæsthetic, before applying caustics; with glycerin, as application to fetid cancers (R.). *Mercuric Chloride*, in small doses, long-continued, will retard the growth of gastric cancer (Da Costa). *Citric Acid*, ʒj–℥viij aquæ, useful in allaying pain of cancerous ulcerations (Wa.). *Acetic Acid*, 1 to 3 aquæ; ♏xxx injected into the tumors, has been used with varying success (Wa.). *Chloral*, in gr. x doses, 3 times a day, has relieved most severe pain of cancer (R.). *Chloroform*, as vapor to raw surface

(R.). *Hyoscyamus*, bruised leaves, locally (P.). *Bismuth*, relieves pain and vomiting of gastric cancer (B.). *Glycerin of Tannin*, with glycerin of carbolic acid, checks discharge and stench of uterine cancer (R.). *Carbonic Acid*, injected up vagina in cancer of uterus, to relieve pain (R.). *Iodoform*, applied to diseased surface, relieves pain and removes fetid odor (B., P.). *Resorcin*, 15 parts to 20 of Vaseline as an ointment twice daily after washing with a solution of pot. permanganate has successfully stopped epithelioma (Antonio). *Potassium Chlorate*, in impalpable powder, dusted on epithelioma, said to be curative (B.). *Pepsin*, injections into tumor (B.). *Salicylic Acid*, pure, applied in powder (B.). *Zinc Chloride*, the most efficient and safe escharotic. Parts j—ij–v flour, or "caustic arrows" inserted at base of tumor (B.). *Potassa Fusa*, as escharotic (B.). *Opium*, to cancerous sores. Morphine, dissolved in glycerin and spread on lint, very useful where there is much pain. Opium is also used in cancer of the stomach (R.). Codeine (gr. $\frac{1}{15}$ to $\frac{1}{10}$), a good hypnotic (P.). *Zinc Sulphate*, dusted over, dry. An excellent caustic. Remove the eschar by poultice (B.). *Bromine*, for destruction of uterine cancer, is preferred by some (B.). *Chromic Acid*, a powerful escharotic (B.). *Carbonate of Lime*, as calcined oyster-shell, very efficient in arresting growth of cancerous tumors, and in alleviating the pain thereof (Hood). *Rumex Acetosa*, an excellent local application; has a popular reputation. *Iron and Manganese*, the syrup of the iodide, for resulting cachectic state (B.). *Poultices* of starch, applied cold (R.); or poultices of bread, sprinkled with charcoal or freshly ground coffee, as deodorizers to open cancers. *Warm Enemata*, to relieve pain and straining in intestinal cancer (R.).

Prescriptions.

℞. Bismuthi Subnit., ... ʒ ij.
Morphinæ Sulph., ... gr. j.
Fiant pulv. vj. Sig.—One thrice daily in milk, when gastric pain and vomiting.
(B.)

℞. Acidi Arseniosi, ... ʒ ij.
Mucil. Acaciæ, ... ʒ j.
As paste on cancerous sore, followed after 2 or 3 days by bread poultices until slough separates.

Cancrum Oris.

Arsenic, in medicinal doses (R.). *Nitric Acid*, to surface (R.); strong nitric acid the best caustic for worse forms of the disease (Wa.). *Potassic Chlorate*, gr. xx–xl in 24 hours, has been strongly recommended (D.). *Quinine*, made into a syrup, or as enema, to support the strength (Wa.). [Compare APHTHÆ, STOMATITIS.]

Carbuncle.

Belladonna, with glycerin, as local application to relieve pain (R., P., Wa.). *Ammonium Acetate*, to support the system (Cezard). *Carbolic Acid*, on lint, with glycerin or oil, into discharging sinuses (R.); or hypodermically into the sloughing tissues. *Iodine*, to produce vesication around carbuncle; reduces inflammation (R.); part j of tincture to iij aquæ, locally, has most striking effect (Wa.); may be used with benefit internally or hypodermically (Cezard). *Calcium Sulphide*, gr. $\frac{1}{10}$ hourly, or every two hours, of great service (R.). *Opium*, a thick extract, locally (R.). *Potassium Chlorate*, highly recommended, also *Quinine and Iron*, freely to support the system and counteract the carbuncular poison. *Poultices*, the inflamed surface having been previously smeared with belladonna and glycerin (R.). Long-continued poulticing thought to create tendency to a fresh crop. *Strapping*, with plaster, concentrically from border inwards, leaving the centre free, will sometimes arrest extension (R.). *Collodion*, as protective covering (P.); as zone around base, leaving the centre exposed (Wa.). Collodium cum cantharide in a broad zone painted around the carbuncle, to relieve the tension (Ag.). *Ice*, or *Ice-bags* or iced-water on cloths in early stage, changing to warm fomentations as soon as suppuration has begun (Hebra). *Galbanum and Opium* as plaster to relieve pain, the separation of the core then proceeding painlessly (Hill). *Crucial Incisions* are no so frequently made now as formerly; they relieve tension, but often give ris to severe hemorrhage. *Diet* should be very supporting, and stimulants ma be used freely when the patient is debilitated. Saline purges occasionall (Hill). *Cauterization*, with fuming nitric or carbolic acid, on top of a fre crucial incision, followed by dressing with carbolized oil, is the course to purs in malignant pustule. *Caustic Potash*, applied before an opening occurs, small pieces inserted into openings made by scalpel, to cause the rapid separ tion of the slough. The resulting ulcer should be treated on general principle [Compare BOILS.]

Prescriptions.

℞. Calcis Sulphurat., ... gr. iij.
Sacchari Lactis, ... q. s.
Triturat. et div. in chart. xxx.
Sig.—One powder every 2 hours, to be taken dry on the tongue.

℞. Tinct. Ferri Chloridi, . . . ℥j.
Potass. Chlorat., ... ℥iij.
Liq. Ammonii Acetat., . . ℥iij.
Syrupi et Aquæ, . q. s. *ad* ℥viij.
M. Sig—Dessertsp. every 2 hours.

Caries.

Aurum, in syphiloma of bones (B.). *Calcium Chloride*, where strumous cachexia (B.). *Phosphoric Acid*, with 8 parts water, locally applied, has been of benefit (Wa.). *Phosphates*, best is syrup of lacto-phosphate of lime, or Parrish's phos. (B., R.). *Villate's Solution*, to dissolve the carious bone, has cured many cases (B.); see formula below. *Sarsaparilla*, a very useful medicine (P.). *Iodine*, locally, with iron or cod-liver oil internally (Wa.); see BONE. *Potassic Iodide*, in syphilitic caries, holds the first place (Wa.). *Cod-liver Oil*, to promote constructive metamorphosis (B., R.). *Mechanical Contrivances*, necessary in most cases; Sayre's plaster jacket, Agnew's jacket of leather and steel, Taylor's apparatus, etc., are used in spinal caries to separate the diseased bones, and extend the spinal column. [Compare NECROSIS.]

Prescriptions.

Villate's Solution.

℞. Cupri Sulphat.,
Zinci Sulphat., āā partes xv.
Liq. Plumbi Subacetat., p. xxx.
Aceti, ... p. cc.
To be injected through the sinuses.

℞. Syrupi Calcii Lacto-phosphatis (U. S. P.), . . . ℥viij.
Sig.—A dessertsp. to a tablesp. 3 or 4 times daily.

Catalepsy.

Turpentine, in enemas, and embrocations along the spine, affords the best chance of stopping the paroxysms (Wa.). *Treatment* must be essentially tonic and restorative (H.). No constant line can be stated (A.); external stimulation to arouse consciousness, by Ammonia, cold douches, Faradism, etc. *Apomorphine*, gr. $\frac{1}{20}$ to $\frac{1}{12}$, in the paroxysm; with the onset of nausea, consciousness returns and spasm ceases; in the intervals between the attacks the treatment should be that of hysteria (Gowers).

Cataract.

Phosphorus, with oil, by frictions to the forehead, and instillation of the same into the eye, may cause absorption of the lens or capsule (Wa.). *Codeine*, in diabetic cases (Br.). *Sodium Sulphate*, a solution suggested as injection into anterior chamber, in hope to dissolve the nebula (Wa.). *Galvanism*, has been successfully employed in incipient stage (Wa.). *Mydriatics*, Atropine, Duboisine, etc., to secure full dilatation of pupil, as a means of ascertaining when the operation should be made, which is when the cataract is mature, there being o vision even with dilated pupil (Wa.). *Diet and Regimen*, may do much retard degeneration of the lens, in cases due to diabetes, or malassimilation n gouty or rheumatic persons (C.). *Iridectomy*, made early and effectually nay postpone the progress of lenticular opacity, if due to increased intraocular ension (C.). In partial cataracts, which have become stationary, iridectomy or artificial pupil may be done to expose clear portion of lens (Roosa). *Medi-ine* accomplishes nothing except to improve general health and so delay the progress of the opacity. Removal may be performed by one of several operaions (Roosa).

Catarrh, Acute Nasal.

Aconite, in severe coryza with much chilliness, aching limbs, hot and dry skin, and quick pulse; also in catarrhs of children and that accompanying measles (R.); in acute coryza (P.); with Belladonna in ordinary colds with sore throat and high fever (B.); in doses of ♏ ⅓ every ¼ hour, very useful for a commencing cold in the head (A. A. Smith). *Belladonna*, in acute nasal catarrh with profuse watery secretion, ♏ v of tincture, then ♏ j each hour (B.). *Nux Vomica*, has great effect upon a dry cold in the head (P.). *Euphrasia*, is of decided utility in coryza (P.). *Pulsatilla*, a warm lotion, ʒj–ij in ℥iv aquæ, syringed into the nasal passages in subacute coryza with muco-purulent secretion (P.); acts similarly to Aconite, but is contraindicated if much gastric or intestinal irritation exists (B.). *Iodine*, by inhalation in daily attacks with itching nose (R.); ʒij of the tincture with ʒj of carbolic acid inhaled from a sponge in the bottom of a wide-mouthed bottle placed in hot water (B.). *Iodides*, are unquestionably serviceable, their action being local and substitutive; Ammonium Iodide, gr. j every two hours, the best mode of using them (B.). *Sodium Iodide*, gr. x ter die, with Pil. Ferri Iodidi, in catarrhs of specific origin (B.). *Potassium Iodide*, gr. x at bedtime at the onset, to cut short an acute cold in the head; also useful in chronic colds (R.). *Quinine and Morphine*, gr. x with gr. ⅙, at incipiency, will often abort (B.). *Opium*, at night, if taken early, will often abort an attack of coryza; a glass of hot grog assists its action (R.); Dover's powder, in a full dose at the onset may abort (B.). *Codeine*, is useful in common colds, as a palliative (B.). *Ammonia*, may be inhaled in the early stage (R.). *Potassium Chlorate*, 8 or 10 lozenges a day will abort many a cold (R.). *Camphor*, as inhalation, the spirit in form of vapor (R.); with Opium and ammonium carbonate as powder (see formula below), to break up or modify a cold (Beard). *Tartar Emetic*, gr. $\frac{1}{20}$ to $\frac{1}{12}$ in the first stage (B.); in acute catarrh of children often accompanied by vomiting and diarrhœa (R.). *Arsenic*, when sneezing, itching of nostrils, frontal headache (R.); as cigarettes (B.); see under ASTHMA, for formula. *Veratrum Viride*, if arsenic fails (R.). *Ipecacuanha*, for acute nasal and bronchial catarrh, and ordinary colds in children (B.). *Cimicifuga*, when headache, stiff muscles, dull aches, bone-pains, etc. (R.); an excellent expectorant (B.); rheumatic colds, neuralgic pains in jaw (P.). *Jaborandi*, the fluid extract in doses of ♏x to xxx, every half-hour until profuse diaphoresis sets in, is one of the best modes of aborting a cold: or *Pilocarpine Hydrochlorate*, gr. ⅙ in water at bed-time, will give prompt relief, and cure in a few days (Wyss). *Cocaine*, a 4 or 5 per cent. solution locally as spray, to empty the engorged venous sinuses of the nasal mucous membrane, by their contraction, which it induces. The fluid extract of Erythroxylon diluted with water is equally efficient if enough be used (Cohen). *Resorcin*, the best of all applications (see CATARRH, CHRONIC). *Cubeb*, or *Ammonium Chloride*, in the dry, congestive stage of a cold in the head; Cubeb cigarettes may be smoked as a temporary palliative with great relief. *Sulphurous Acid*, in coryza, by inhalation, spray or fumigation, is very efficient (R.). *Oil Inunctions*, daily to the whole body, in cases of undue susceptibility to taking cold, will prevent the frequency of the attacks (B.). *Baths*, a warm foot-bath before going to bed; Turkish bath, at onset in coryza, may prove abortive; also useful later on. Cold sponge bath, in cases of extreme susceptibility, supplemented by occasional Turkish baths (R.). [Compare COUGH, HAY-FEVER, INFLUENZA.]

Prescriptions.

℞. Quininæ Sulph., ... gr. xviij.
Liq. Arsenicalis (B. P.) . ♏ xij.
Liq. Atropinæ (B. P.) . . ♏ j.
Ext. Gentianæ, ... gr. xx.
Pulv. Acaciæ, ... q. s.
Ft. pil. no xij. Sig.—One every 3, 4 or six hours, for acute colds. (*Whalen.*)

℞. Camphoræ, ... gr. l.
Ætheris, ... q. s.
Dissolve to creamy consistence, then add—
Ammonii Carbonat., . . . gr. xl.
Pulv. Opii, ... gr. x.
Divide into thirty papers.
One or two powders, according to age, twice or thrice daily. (*Beard.*)

℞. Acidi Carbolici, ... gr. lxxx.
Alcoholis, ... ℥ss.
Aq. Ammoniæ, ... ♏lxxx.
Aquæ, ... ʒijss.
M. Sig.—A few drops as an inhalation from a cone of blotting paper. (*Brand.*)

℞. Morph. Acetat., ... gr. iv.
Bism. Subnitrat.,
Pulv. Talc., ... aa ʒj
Ft. Chartulas, No. xxx.
Sig.—Use as snuff in acute rhinitis. (*Sajous*).

℞. Codeinæ, ... gr. ij.
Syrupi Tolutani,
Syr. Scillæ Comp., ... āā ℥j.
M. Sig.—Teaspoonful occasionally for a common cold. (B.)

℞. Tinct. Aconiti, ... ♏ x.
Tinct. Belladonnæ, . . . ʒss.
Syrupi Zingiberis, . . . *ad* ℥ij.
M. Sig.—Half to one teasp. according to age, every hour.

Ferrier's Snuff.

℞. Morph. Hydrochlor., . . . gr. ij.
Bismuthi Subnit, ... ʒvj.
Pulv. Acaciæ, ... ʒij.
M. Sig.—Use as snuff, ¼ to ½ the above in 24 hours.

Catarrh, Chronic Nasal.

Sanguinaria, the tincture in 10-drop doses thrice daily, or gr. $\frac{1}{15}$ of the alkaloid, internally, and the powder in small quantity locally to the mucous membrane, is successful treatment for chronic nasal catarrh (B.). *Hydrastis* is of value in chronic coryza, also in ulceration of the septum or any other part of the nasal fossæ, gtt. v of the tincture thrice daily internally, and ʒj to ℥viij of water locally with syringe (P.). *Pulsatilla*, is excellent in subacute inflammation of nasal passages, with offensive muco-purulent discharge, ʒj–ij ad ℥iv of water, as wash (P.) *Potassium Bichromate*, is an excellent local application in a solution of gr. j–x to ℥iv water (B.) *Iodoform and Tannin*, 1 of the former to 2 or 3 of the latter, carefully triturated, and applied by an insufflator every other day only, is the very best of all applications (B.). *Sodium Chloride or Phosphate*, a teasp. to the pint of warm water as cleansing solution, or the *Bicarbonate* in the same proportion. A sea-water gargle in the naso-pharyngeal space, has been used with success (Mosler). Wei de Meyer's Catarrh Cure is simply bicarbonate of sodium and a little pink coloring matter (Robinson). *Potassium Permanganate*, gr. j–x to the pint of warm water, as a deodorant solution when necessary. *Ammonia*, by inhalation, when painful inflammation of nasal mucous membrane and frontal bones (R.). *Carbolic Acid*, a 1 per cent. solution as spray, or inhalations of the vapor with that of iodine from a bottle in hot water, or vaporized by the warmth of the hand (B.). *Salicylic Acid*, in weak solution, 1 to 500 of water, as a disinfectant and astringent injection, used with a retro-pharyngeal syringe, and followed by applications of powdered *Calomel*, through a speculum, upon the ulcerated parts of the mucous membrane (Massei). *Cubebs*, finely powdered and blown into the nares by an insufflator (B.); have proven very useful (P.); may be smoked, and administered internally in teasp. doses (Wa.); in freshly ground powder, as a confection (see below for formula), very efficient in follicular disease of the naso-pharyngeal space (Robinson). *Ammoniacum*, in the same condition, very small doses, gr. j–iij, with ipecac. or carbonate of ammonium, will greatly lessen the amount of secretion (Robinson). *Bismuth*, in powder, with gum acaciæ, as

Ferrier's snuff (see above for formula), or with tannin, calomel, iodoform,
, used by insufflation, daily (Robinson). *Aurum Chloride*, in mercurialized
syphilitic subjects, with offensive discharge, depressed spirits, and soreness
the nasal bones. *Iodides*, of iron and sodium, in catarrh of specific origin
). *Silver Nitrate*, in powder, as alterative application, gr. x–xv to the ℥ of
nstruum, is often a useful adjunct to treatment, used once every 4 or 5 days
obinson). *Cod-liver Oil*, should be used in strumous subjects (R.). *Alum*,
powder, dusted over the affected surface, is a useful application (B.). *Resor-*
, the best of all applications, in acute and chronic catarrh. After cleansing
nose with a Boracic Acid solution, or Dobell's, use a 2 to 10 per cent. oint-
ent (vaseline), also a spray every other day, of 2 to 4 per cent. solution. It
ves the same results as Cocaine, but is slower in action and more lasting, and
es not suppress the normal function of the mucous membrane, as Cocaine
es. *Eucalyptus*, has been employed with benefit (Wa.). *Bromine*, the
por may greatly benefit, but must be used with caution (B.). *Senega* has
en found serviceable (Wa.). *Douche* is dangerous, being likely to cause
tension of the catarrh to the Eustachian tube and the middle ear. It has
en very generally abandoned. *Sprays* by hand-ball atomizers, or com-
essed air-apparatus, of warm watery solutions, vaseline, etc., are used with
nsiderable success (Cohen). The Hank's atomizing tubes, with a 2-ball
bber syringe, are very serviceable for office use, and for the application of
umbold's hot vaseline spray. (See formula below). *Sulphur Waters*, inter-
lly, of great benefit in follicular disease. (Robinson.) [Compare OZÆNA.]

Prescriptions.

Acidi Carbolici, ... ♏x.
Glycerini, ... ℥ij.
Vaseline, ... ʒij.
M. Sig.—Warm and use as a spray
ery 4 hours. (*Rumbold.*)

Pulv. Argenti Nitrat., . . . gr. vij.
Pulv. Acaciæ, ... ʒj.
Bismuthi Subnitrat., . . . ʒiij.
Triturat. Sig.—Apply with insufflator
ce in 4 or 5 days. (*Robinson.*)

Bismuthi Subcarb., ... ʒvj.
Morph. Muriatis, ... gr. ij.
Pulv. Amyli, ... ʒij.
Triturat. Sig.—Burness' modification of
rrier's snuff.

Bismuthi Subcarb.,
Pulv. Acaciæ, ... aa ʒss.
Zinci Sulphat., ... gr. x.
Morph. Sulphat., ... gr. ij.
M. Sig.—Snuff, to be used thrice daily.
(*Sajous.*)

Pulv. Cubebæ, ... ℥ij.
Syr. Aurantii, ... ℥iij.
Aq. Menth. Pip., ... ℥ij
Aquæ, ... q. s. *ad* ℥viij.
Ft. mistura. Sig.—A teaspoonful every
or 4 hours. (*Robinson.*)

℞. Acidi Carbolici, ... ♏xl.
Sodii Boratis,
Sodii Bicarbonat., ... aa ʒij.
Glycerini, ... ℥vij.
Aquæ, ... q. s. *ad* ℥viij.
M. Sig.—Use daily as spray.
(*Dobell.*)

℞. Sodii Boro-benzoatis, . . . ℥j.
Ext. Hydrastis Fl., ... ʒj.
Glycerini, ... ʒj.
Ac. Carbolici, ... ♏xx.
Aquæ Camphoræ, ... ℥vj.
Aquæ, ... q. s. *ad* ℥xij.
M. Sig.—Use with syringe or atomizer
thrice daily. (*Chamberlain.*)

℞. Sodii Iodidi, ... ℥ss.
Syrupi Picis Liq., ... ℥vj.
M. Sig.—Dessertsp. thrice daily with
Pil. Ferri Iodidi (U. S.) one thrice daily, in
chronic nasal catarrh of specific origin.
(B.)

℞. Ext. Pini Canad., ... ♏xx.
Glycerini, ... ♏xxx.
Aquæ, ... Oj.
M. Sig.—Use with post-nasal syringe.

℞. Acidi Carbol., ... gtt. xv.
Extr. Hydrastis Fl., . . . ʒj.
Sodii Bicarb.,
Sodii Biborat., ... āā ʒj.
Glycerini, ... ℥j.
Aquæ Camphoræ, . . . *ad* ℥viij.
M. Sig. — Use with posterior nasal sprayer.

℞. Sodii Salicylatis, ... ʒij.
Sodii Boratis, ... ʒiij.
Glycerini, ... ℥ss.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Of this put a dessertspoo
into a pint of warm water, and snuff it fr
the hollow of the hand thrice daily.
(*Sajo*

Cerebral Anæmia.

Iron, the tincture of the chloride, or mild chalybeate waters, in chronic cases from general anæmia (B.). *Amyl Nitrite*, in vaso-motor spasm; affords relief in sudden attack (B.). *Chloral*, in small doses, with stimulants, warm baths (Ros.). *Camphor*, or other cerebral excitants, as asafœtida, valerian, serpentaria (B.). The mono-bromide of camphor in one to five grain doses (Hammond). *Glonoinum*, ♏j of 1 per cent. solution (P.). *Phosphorus*, supplies the needed material for healthy brain-action (B.). *Strychnine*, stimulates the circulation generally; as a tonic with iron preparations. *Galvanism*, a mild current transversely through the head, gives excellent results in the confusion of mind, vertigo, etc., due to imperfect nutrition of the brain from atheroma of the cerebral vessels (B.). *Arsenic*, is highly efficient in some hypochondriacal cases (B.). *Aurum*, is of great utility in vertigo, melancholia, etc., when due to or accompanied by cerebral anæmia (B.). [Compare INSOMNIA.]

Cerebral Concussion.

Arnica, when from a fall, cannot be too highly spoken of (P.). *Warmth*, to extremities, rest, expectant treatment, will suffice in mild cases (Ag.). The indications are: (1) to recover from insensibility and collapse; (2) to prevent inflammation; (3) to restore impaired faculties (D.). *Stimulants*, or *Venesection*, cannot be too strongly reprobated (Ag.).

Cerebral Congestion.

Aconite, in active form, renders important service (B.). Is much the best remedy in this condition (P.). *Belladonna*, one of the best remedies in all hyperæmic conditions of the brain or spinal cord (P.). *Gelsemium*, ♏v of the fluid extract every 2 hours, very useful (B.). *Bromides*, are very useful (B.): must be used in full doses. *Colocynth*, as counter-irritant, appears to act well (P.). *Cathartics*, lessen blood-pressure (B.). *Colchicum*, in plethoric subjects (B.). *Galvanism*, of brain and cervical sympathetics (B.). *Chloral*, when temperature high (B.). *Arsenic*, sluggish venous circulation, torpor (B.). *Hydrocyanic Acid*, ♏ij–v of Scheele's dilute acid (B.). *Venesection*, will prevent injury to brain. Not to be adopted as a matter of course. It is contraindicated when anæmia, aortic valvular disease, or in cases commencing with syncope (A.). *Water*, cold douche to head, feet in warm water: ice and hot water alternately to head and nape of neck, often more effective than ice alone (B.). Hot water to head on flannels: mustard and hot-water packing, for 20 to 30 minutes, around legs, when active congestion. Protect bowels well (R.). *Diet*, should be low, but not too low, until all fear of relapse past. Full animal diet should be avoided, also undiluted wines (A.). [Compare APOPLEXY, COMA.]

Cerebral Softening.

Venesection, and antiphlogistic treatment generally, most beneficial in red softening, result of inflammation. Require wise discretion, and should be used early. Not to be thought of in the yellow form, from want of nutrition: where restoratives and food, perhaps wine (A.). *Phosphorus*, in threatened softening of the brain; is the only drug which affects the nerve-centres (W.).

Chancre.

Mercury, small doses steadily, ptyalism must not be induced. Black-wash (calomel gr. viij, aq. calcis ℥j), or yellow-wash (hydr. chlor. corr. gr. j, aq. calcis ℥j), on lint, to erosions and ulcerated indurations (B.). Calomel alone as dry dressing. Internal use of mercury best postponed until secondary symptoms appear (St.). *Carbolic Acid*, as wet dressing, gr. ij of crystals to ℥iv aquæ ter die (St.). *Iodoform*, heads the list of dry dressings; with lycopodium, equal parts, or 1 to 2 zinci oxidi; 2 to 1 hydr. chlor. mite (St.). *Hydrogen Peroxide*, said to destroy the specific character. Wash lesions ter die, and apply lint soaked in it (R.). *Caustics*, should never be used unless chancre attacked by phagedena (St.). *Caustic Alkalies*, to hard edges (R.). *Bromine, Chromic Acid*, best escharotics (B.). *Dressings*, are effective as far as the local trouble is concerned in the majority of cases; sometimes a piece of lint on the erosion will suffice. Never cauterize an initial lesion unless it is attacked by phagedena (St.). *Cleanliness*, of great importance; tepid water locally frequently suffices for the outward treatment of infecting chancre. [Compare SYPHILIS.]

Chancroid.

Mercury, the acid nitrate one of the best caustics; apply with a glass rod (B.). *Nitric Acid*, fuming, as caustic (B., R.); ʒj to ℥viij aquæ is an excellent dressing (St.). *Carbolic Acid*, injected into sore (B.); ʒij–v to Oj aquæ locally in phagedena (St.). *Ferri et Potas. Tartras*, the "born enemy of phagedena" (Ricord); ℥j to ℥vj aquæ, internally, teasp. doses thrice daily; also locally (St.). *Ferric Iodide*, in sloughing phagedena, or simple c. in debilitated constitutions (B.). *Iodoform*, powdered and dusted over the sore, allays pain, changes morbid action, and is antiseptic (B., R.); 1 part to 2 of lycopodium, or one of tannic acid; as stimulant and alterative (St.). Does no good except to relieve pain (Gross). *Potassium Chlorate*, in impalpable powder, is better than iodoform (B.). *Chloral*, gr. iij ad ℥j aquæ, the best local application to relieve pain (Gross). *Caustics*, in severe cases; the *white* iron, strong sulphuric acid, pure nitric acid, pure carbolic acid, are effective in the order named (St.). [Compare BUBO.]

Chapped Hands and Lips.

Sulphurous Acid, as solution, or by fumigation, will speedily cure (R.). *Glycerin*, diluted, or better still, glycerin of starch, or with ½ the quantity of eau de cologne (R.). *Benzoin*, the comp. tinct., 1 part to 4 of glycerin; an admirable application (P.). *Hydrastis*, on compress, as lotion (P.). *Collodion*, is usefully employed (P.). *Carbolic Acid*, 1 to 2 of glycerin, locally; one application is generally sufficient. *Unguentum Aquæ Rosæ* alone, is often efficient; may be combined with oxide of zinc.

Prescriptions.

℞.	Resinæ, ...	℥j.	℞.	Cetacei, ...	ʒj.
	Ceræ Albæ, ...	℥ij.		Glycerini, ...	℥ij.
	Adipis, ...	ʒij.		Ceræ Albæ, ...	gr. xv.
	Zinci Oxidi, ...	ʒvij.		Ol. Amygd. Amaræ, . . .	♏iij.

Chest-pains.

Belladonna, as ointment, when tenderness is in skin (pleurodynia) (R.). *Iodine*, oint.; pain in muscles (myalgia) of chest, they being tender on pressure, while the skin may be pinched without pain (R.). *Strychnine*, affords relief in functional irritability of the nervous system, manifested by wandering neuralgic pains (B.). *Arnica*, for a "stitch" in the side. *Bryonia*, when painful catching of breath. *Cimicifuga*, for intercostal rheumatism and pains under the breasts in women.

Chicken-pox.

Aconite, is of great value (B.). *Water*, hot and cold baths and packs are great utility; cold, if hyperpyrexia; cold compress if sore-throat; hot or wa pack when free diaphoresis required (B.). *Treatment*, precautionary o required. Avoid exposure to cold and wet; maintain the action of skin an bowels (H.). *Acetate of Ammonium*, in diaphoretic and antifebrile mixtu See FEVER, SIMPLE, for formula. *Inunction*, with camphorated oil, or th starch, to relieve itching and allay inflammation (P.).

Chilblains.

Arnica, a useful application (Wa.). *Iodine*, ointment, the best application (R.). *Carbolic Acid*, an efficient application is an ointment of carbolic acid and iodine (B.). *Benzoin*, the tincture in glycerin, applied after thorough washing in soap and water and drying, the best application. *Sulphurous Acid*, an efficient application; ʒiij–ʒj each of water and glycerin (B.); as solution or fumigation (D.). *Balsam of Peru*, in ointment for broken chilblains (R.). *Capsicum*, tinct. painted over unbroken chilblains (R.). *Cajuput Oil*, applied locally (R.). *Turpentine*, as wash, then apply basilicon ointment mixed with turpentine (B.).

Prescriptions.

℞. Acidi Carbolici, ... ʒj.
Tinct. Iodi, ... ʒij.
Ac. Tannici, ... ʒij.
Cerati Simplicis, . . . ℥iv.
M. Sig.—Ointment. (B.)

℞. Tinct. Benzoini, ... ʒij.
Olei Lini, ... ℥iv.
Ceræ Flavæ, ... ʒij.
Glycerini, ... q. s.
M. Sig.—Ointment. (*Reveil.*)

Chlorosis.

Iron, combined with arsenic or strychnine. Occasional purgation and active exercise. Also chalybeate waters for blood deficiencies (B., R.); is not a specific in chlorosis, and acts best in the purest types (Tr.); the iodide, when much torpor of the system, is often speedily efficacious (Wa.). *Arsenic*, if iron fails, or disagrees (B.). *Ergot*, in chlorotic amenorrhœa (P.). *Manganese*, the saccharated carbonate of manganese and iron (B.). *Nux Vomica*, stimulates the blood-making organs, and may be combined with iron. A very generally useful preparation is the syrup or elixir of iron, quinine and strychnine (B.). *Cocculus Indicus*, with amenorrhœa and exhausting leucorrhœa (P.). *Hypophosphites*, of lime or sodium (R.). *Benzoin*, has been used with advantage (P.). *Pepsin*, benefits, especially where digestive derangement (B.). *Sulphur*, of great benefit in cases where iron is of no effect; also to prepare the system for benefit from iron (Schulz). *Purgation* is very important, to prevent auto-infection from putrid intestinal decomposition, which is the true cause of this disease (Duclos): absorption of such products tending to impoverish the blood, and produce a "fæcal anæmia" (Sir A. Clark). *Oils and Fats*, as inunctions after baths, of great benefit (B.). *Galvanization*, central; will aid the action of the remedies (B.). [Compare ANÆMIA, AMENORRHŒA.]

Prescriptions.

℞. Ferri Arseniatis, ... gr. ij.
Extracti Cinchonæ, . . gr. xij.
Fiant pil. xij. Sig.—One after each meal. (B.)

℞. Ferri Sulph. Exsiccat., . gr. xl.
Quininæ Sulphatis, . . . gr. xx.
Strychninæ Sulphat., . . gr. ss.
Ft. pil. xx. Sig.—One thrice daily.

℞. Pulv. Aloes Socot., . . . gr. v.
Ferri Sulph. Exsiccat., . . gr. xv.
Ol. Tanaceti *vel*
Ol. Sabinæ, ... gtt. xxx.
Myrrhæ, Croci,
Cantharidis, ... āā gr. xxx.
Ft. pil. lx. Sig.—Two thrice daily, gradually increased to four. (*Wallace.*)

Choking.

otassic Bromide, benefits a curious affection, sometimes found in children, from their birth can swallow solids with ease but choke at drinks (B.). *Oil ajuput*, in one case of persistent "choking" sensation in the throat, a few es removed the symptoms which had lasted several weeks (Hale).

Cholera Asiatica.

amphor, a drop or two of the saturated tincture, or v–x drops of the spirits a little opium every half-hour (B.); gtt. iv–vj of strong spirits every ten utes until symptoms abate, then hourly (R.). *Arsenic*, in epidemic cholera: e cases of arsenic poisoning not distinguishable from cholera (B.); for the niting and in collapse (R.). *Copper* salts have been given (R.). *Turpen-*, ♏x–xx every two hours promises to be a remedy of value (Wa.). *Chloral*, injection, the most efficient treatment, especially when morphine and atropine given coincidently (B.). *Chloroform*, a few drops frequently repeated, or xx drops of chlorodyne, of great value (B.). *Opium*, $\frac{1}{10}$ to $\frac{1}{2}$ gr. morph. podermically in preliminary diarrhœa (B.,P.); $\frac{1}{8}$ to $\frac{1}{4}$ gr. of the greatest value, en in collapse (R.); dangerous if kidney complications exist (P.). *Lead*, the etate in early stages (R.). *Carbolic Acid*, with iodine, has given good results). *Sulphuric Acid*, the aromatic, with opium, is very effective (B.); two parts of former with one of laudanum, of this 5 to 30 drops as per age, is one of the st prophylactics (McClellan). *Strychnine*, as prophylactic during the pre-inary diarrhœa, and in epidemic when nearing collapse (B.). *Alcohol*, small ses of iced brandy for vomiting (B.). *Spinal Ice-bag*, for cramps (R.). *line Injections*, into the veins, have been successful in the collapse (B.). *ansfusion*, of milk, in collapse (B.). *Absolute Rest*, recumbent posture, no od, ice *ad libitum;* enemata of warm milk; fresh air, friction and heat to domen, legs and feet; stimulants worse than useless.

Prescriptions.

Chloralis Hydrat., ... ʒ iij.
Morphinæ Sulph., ... gr. iv.
Aquæ Laurocerasi, ... ℥ j.
M. Sig.—Fifteen to twenty drops as in-
tion hypodermically. (B.)

Chloroformi, ... ʒ ij.
Tinct. Opii,
Spt. Camphoræ,
Tinct. Capsici, ... āā ℥ vss.
Alcoholis, ... ℥ j.
M. Sig.—30 to 60 drops in water.
(*Squibb's Cholera Mixture.*)

℞. Acidi Carbolici, ... gr. iv.
Tinct. Iodi, ... gtt. xvj.
Aq. Menth. Pip., ... ℥ iv.
M. Sig.—A tablesp. every hour or oftener. (B.)

℞. Acidi Carbolici, ... gr. viij.
Bismuthi Subnit., ... ʒ ij.
Mucil. Acaciæ,
Aquæ Laurocerasi, . . . āā ℥ j.
M. Sig.—Teasp. every hour or two for vomiting and diarrhœa.

Cholera Infantum.

Ipecacuanha, greenish stools with mucus and often blood (B.). *Arsenic*, for miting and collapse (R.). *Mercury*, gr. $\frac{1}{8}$ of gray powder hourly of great rvice in infantile cholera with incessant sickness, profuse almost continuous arrhœa, offensive and nearly colorless stools. A starch injection, with a inute quantity of laudanum, assists the gray powder, and should be given in gent cases (R.). *Zinc Oxide*, with bismuth and pepsin, is very useful (B.). *amphor*, ʒj–℥iv of milk, very serviceable (B.); an admirable remedy for mmer and choleraic diarrhœa (R.). *Opium*, generally necessary. Enemata starch and laudanum (see above under Mercury). *Morphine*, hypoder-ically, in doses of gr. $\frac{1}{200}$ to $\frac{1}{30}$ according to age, the latter dose for a child of

one year, with 5 or six drops of ether, to be repeated in an hour, the most effi
cient treatment (E. Smith). *Copper Sulphate*, often very successful (B.). *Car*
bolic Acid, with Bismuth, may arrest the disorder promptly (Br.). *Lead Ac*
tate, is one of the most useful astringents in this complaint (Br.). *Potassiu*
Bromide, when due to nervous irritation or cerebral congestion (B.). *Silv*
Nitrate, is beneficial after the acute symptoms have passed (B.). *Caffein*
when due to nervous irritation (R.). *Coto Bark*, the tinct. gtt. j–iij is high
recommended by Rohrer for choleraic diarrhœas of children. *Alcohol*, in gra
cases, with tendency to collapse, gtt. x–xx of brandy with milk every 30 to
minutes. *Diet*. Farinaceous food a common cause. Cow's milk O¼ w
sacch. lactis ℥j to O¾ aquæ-bul., or cold milk with lime-water (R.); milk, a
mal broths; no starches or fats (B.). *Drinks*, as water, weak tea, etc., free
to keep vessels filled and prevent paralysis of the heart (Meinert). *Spice Po*
tice, to abdomen, composed of cloves, ginger and cinnamon, mixed with bran
or whiskey. *Mustard Bath*, in stage of collapse, with mustard over the hea
and ether hypodermically (Smith). *Lactic Acid*, a 2 per cent. solution
drachm doses, 5 to 8 times in 24 hours, in epidemic diarrhœa of infants wi
green discharges, with local antisepsis as to linen and diapers, on the theory
a bacillary origin for the disease (Hayem).

Prescriptions.

℞. Acidi Carbolici, . . . gr. iv.
Bismuthi Subnit., . . ʒ ij.
Mucil. Acaciæ, . . . ℥ j.
Aquæ Menth. Pip., . ℥ iij.
M. Sig.—Teasp. every 2, 3, or 4 hours. (B.)

℞. Acidi Carbolici, . . gr. xxiv.
Spt. Vini Gallici, . . gtt. xxiv.
Aquæ Menth. Pip., . ℥ jss.
Mucil. Acaciæ, . . ʒ vj.
Syr. Papaveris, . . . ʒ vj.
Tinct. Opii Deod., . . gtt. x.
M. Sig.—A teasp. every 2 hours.

℞. Hydrar. Chlor. Mitis, gr. $\frac{1}{10}$.
Bismuthi Subnitrat., . gr. ij–v.
In powder every half-hour for the vomiting and purging.

℞. Cupri Sulphat., . . . gr. j.
Tinct. Opii Deod., . . gtt. viij.
Aquæ Destil., ... ℥ iv.
M. Sig.—Teasp. every 2, 3, or 4 hours for a child of one to two years old. (B.)

℞. Plumbi Acetat., . . . gr. xxiv.
Pulv. Opii, ... gr. xij.
Pulv. Camphoræ, . . . ʒ ss.
Sacch. Lactis, ... q. s.
Triturat. et div. in chart. xij.
Sig.—One every hour. (B.)

℞. Hydrarg. Chlor. Mitis, gr. $\frac{1}{8}$.
Plumbi Acetatis, . . . gr. $\frac{1}{8}$.
Opii, ... gr. $\frac{1}{6}$ to
Ft. pulv. no. j. Repeat every half-h
or hour for the acute gastric symptoms.

Cholera Simplex.

Camphor, an admirable remedy (R., B.). *Veratrum Album*, for the vo
(R.). *Copper Salts*, have been given (R.). *Arsenic*, for vomiting; also f
lapse in latter stages (R.). *Chloral*, by injection, the most efficient tre
(B.). [See C. ASIATICA for formula.] For the cramps Chloral ℥j,
Saponis ℥iv–vj, applied with friction to the abdomen (Da Costa).
Acid, with bismuth, very effective (B.). [See above, C. INFANTUM.]
the acetate, in early stages (R.). *Opium*, gr. ¼–½ morphine, hypoder
very useful (B.). Gr. ⅛, ¼, or ½ opii, every 2, 4, or 6 hours, in early s
Calumba, as anti-emetic, of great value (P.). *Ipecacuanha*, has b
with much advantage (Wa.). *Sumbul*, said to have proved succe
Mustard, as an emetic in collapse, to stimulate a failing heart (P.).
Oil, much used in India for choleraic affections (P.). *Alcohol*. Ic
in small doses for vomiting (B.). The value of stimulants justly d
given, should be largely diluted (Wa.). [Compare CHOLERA ASI
INFANTUM, above.]

Chordee.

Aconite, gtt. j hourly, will relieve (R., P.). *Belladonna*, combined with camphor or opium, gives the best results of remedies administered internally (St.). *Camphor*, ʒj doses of the spirit will relieve (R.). *Cantharis*, gtt. j ter die, will prevent (B., R.). *Cannabis Indica* or *Cannabis Sativa* (P.). *Lupulin*, valuable (P.); said to prevent (B.). *Morphine*, hypodermically, the one sure remedy; should be injected into the perineum at bedtime (St.). *Cocaine*, a few drops of a 4 per cent. solution, locally to the glans; or injected into urethra, promptly relieves chordee. *Diet* should be plain, even low, no stimulants; copious draughts of barley-water, or linseed tea.

Prescriptions.

℞. Liq. Morph. (Magendie), ʒ iv.
Atropinæ Sulphat., . . gr. j.
Acidi Acetici, ... q. s.
Aquæ Destillat., . . *ad* ℥ j.
M. Sig.—♏v–viij hypodermically at bedtime. (St.)

℞. Pulv. Opii, ... gr. xij.
Pulv. Camphoræ, . . . gr. xxiv.
Sacch. Alb., ... q. s.
Fiant capsulæ xij.
Sig.—One at bedtime, to be repeated in 2 hours if required. (St.)

Chorea.

Cimicifuga, in cases due to menstrual derangement, is very useful (B., P.); when rheumatic history (R.); a very valuable remedy (P.). *Strychnine*, in doses gradually increasing to toxic (Tr.); minute doses (gr. $\frac{1}{80}$ to $\frac{1}{40}$) have been of much use when from fright or commencing puberty (B.); *Arsenic*, large doses required, ♏v ter die, when non-anæmic (B.); very successful in uncomplicated cases (R.). *Zinc*, the Sulphate has similar action to Arsenic, but is inferior (B.). In large and increasing doses it is very useful (R.). *Iron*, large doses of the Subcarbonate in anæmic cases, about the time of puberty (B.). Chalybeate waters often relieve or cure. Arsenic generally better, unless anæmia coexists (R.). *Hyoscyamine*, gr. $\frac{1}{200}$ ter die, gradually increased, has cured cases which resisted all other remedies (Da Costa). The mydriatics are very suitable in nervous, delicate children. *Copper*. Cupr. Ammoniatum has been used successfully (B.). *Veratrum Viride*, has been employed (R.). *Cocculus*, picrotoxine, large doses (B., P.). *Conium*, in large doses, to quiet muscular agitation (B.); is only palliative (R.); evidence contradictory as to its value (P.). *Valerian*, said to restrain the movements (R.). Useful when from worms (P.). *Chloral*, contributes to a cure by inducing quiet sleep (B., R.). *Chloroform*, inhalations, often of great service in severe cases (R.). *Morphine*, with Chloral, hypodermically in large doses, for severe cases (Tr.); when the movements prevent sleep (R.). *Physostigma*, is recommended (R.);—of doubtful benefit (B.). *Musk*, has been given (R.). *Cod-liver Oil*, in low nutrition (B., R.). *Water*. Cold affusion to head and spine, and cold baths, important (B.); not to be used if rheumatism, fever, or pain in joints. Tepid water first (R.). *Galvanism*, the constant current, used by Benedict in twenty cases, all recovering. Galvanic chain around neck and down the back.

Prescriptions.

℞. Tinct. Ferri Chloridi, . . ℥j.
Liq. Acidi Arseniosi, . . ℥ij.
Syr. Limonis, ... ℥ss.
Syr. Simplicis,
Aquæ, ... āā q. s. *ad* ℥iv.
M. Sig.—Half a teaspoonful thrice daily, after meals, gradually increased, and effects carefully watched.

℞. Chloralis Hydrat., . . ʒiv.
Tinct. Hyoscyami, . . ℥j.
Syr. Limonis, ... ℥j.
Aquæ Cinnamomi, . . ℥iv.
M. Sig.—A teasp. 3 or 4 times daily, according to age.

Choroiditis.

Mercury, as in iritis; cannot be borne to the same extent as in latter disease (A.). *Opiates*, necessary externally and internally to overcome pain (A.). *Treatment*, is generally the same as in corresponding forms of iritis, but where atrophic spots appear on the choroid, no treatment can repair the damage (A.). Rest of eyes and protection from light by blue glasses. In suppurative form (panophthalmitis) use *Atropine* in strong solution, with ice compresses and leeches in early stage. Paracentesis repeatedly to relieve tension and give exit to pus. Canthoplasty of outer canthus to relieve the pressure of the lids (Roosa).

Climacteric Disorders.

Aconite, for nervous palpitations, and restlessness or "fidgets;" gtt. j hourly (R.). *Cimicifuga*, for distressing headache (R.). *Nitrite of Amyl*, in small doses when the "heats" predominate, followed by cold, clammy, pale skin (R.). *Ergot*, for the flooding, gr. ij of Squibb's extract in fresh pill every hour until relieved. Cannabis Indica may be well combined with it. *Cannabis Indica*, is used in the headaches of the menopause with uniformly good results. [See HEADACHE, for formula.] *Nux Vomica*, *Opium*, and *Belladonna*, when symptoms described under *Iron* are limited to head and face (R.). *Iron*, for flutterings of the heart, with fullness of head, heat and weight on the vertex, frequent flushings, and hot and cold perspirations. Large doses of Sesquichloride ter die (R.). *Ammonia*, Raspail's sedative lotion to painful part of head, in headaches (R.). *Potassium Bromide*, for despondency, with sleeplessness and irritability, often also with heats, flushings, perspirations (R.). *Physostigma*, the extract, gr. $\frac{1}{50}$ every ½ hour for 7 or 8 doses for flatulence and a sensation of fluttering at the pit of the stomach (A. A. Smith). *Camphor*, for drowsiness and headache. Eau-de-cologne saturated with camphor rubbed to head (R.). *Zinc Valerianate*, hysterical symptoms (R.). *Change of air and scene*, where other treatment only partially successful (R.). *Warm Bath*, to promote free perspiration. 90° to 95° Fah. for an hour once a week, will obviate many of the symptoms (R.). [Compare METRORRHAGIA.]

Coccyodynia.

Chloroform, injected as deeply as possible about seat of greatest pain (B.). *Electricity*, has cured one severe case of 12 years' standing, and helped others. *Surgical* treatment the only resource in rebellious and painful cases (Ros.). Nott extirpated the coccyx; Simpson performed subcutaneous section of muscles and ligaments. Goodell removes the bone, after first treating the case as a local expression of a general neurosis.

Coldness.

Strychnine, for cold hands and feet (R.). *Cold Baths*, with friction to the skin, nightly for cold feet (R.). *Spinal Ice-bag*, is often efficiently employed in general coldness of the surface, and persistent coldness of the hands and feet (R.).

Colic, Intestinal.

Nux Vomica, quickly subdues abdominal cramps and spasms (P.). *Belladonna*, especially in children (R.). *Chamomile Oil*, ♏iv–vj, in colicky attacks of hysterical women (P.). *Cocculus*, of great value, especially during pregnancy (P.). *Chloral*, sometimes relieves (R.). *Chloroform*, effective in flatulent colic; also useful in hepatic and saturnine (B.). Often used combined with Opium (D.). *Potassium Bromide*, in a peculiar form in young children (R.). Given in anise or peppermint water is of greater efficacy for the colic of infants than the opium preparations in general use, and perfectly safe (B.).

sfœtida, no better remedy in flatulent colic of infants. Teasp. doses of the tura asafœtidæ (B.). *Morphine*, gr. ⅛–¼ hypodermically, repeated in 15 utes, gives more relief than any other remedy, in all forms of colic (B.). quent small doses (R., P.). *Arsenic*, will cure in a surprising manner when eralgia is idiopathic (B.). *Essential Oils*, especially those of Cloves and namon (R.), Anise, Cardamom, etc. Oil of Rue in flatulent colic of ldren (P.). *Magnesia*, the carbonate with Opium and Asafetida, as in wees's Carminative, now official as Mistura Magnesiæ et Asafœtidæ, the dose ng ♏xx for an infant of 2 to 4 weeks old. *Tobacco*, as enema; dangerous!); as clyster, or by stomach (R.). *Ammonia*, in spasm of intestinal canal d in colic of children or infants from bad feeding (R.). *Lime Water*, for ng children who eject milk in lumpy masses, with colic and flatulence). *Water*. Hot fomentations to ease pain (R.). A copious enema of rm water often gives immediate relief.

Prescriptions.

Spiritus Chloroformi,
Tinct. Cardamomi Co., . āā ℥ ij.
M. Sig.—Teasp. in water every ½
r. (B.)

Atropinæ Sulph. . . . . gr. j.
Zinci Sulphatis, ... gr. xxx.
Aquæ Destil., ... ℥ j.
M. Sig.—3 to 5 drops 2 or 3 times
ly. (B.)

℞. Ext. Gentianæ,
Pulv. Rhei, ... āā ʒ j.
Ft. pil. xx. Sig.—One or two thrice daily for tendency to colic.

℞. Pulv. Camphoræ,
Pulv. Capsici,
Pulv. Zingiberis, ... āā gr. ij.
Ft. pil. xij. Sig.—One as required.

Colic, Lead.

Alum, singularly is the best remedy (B.); gr. x hourly (R.); converts the isonous salt of lead in the system into a comparatively innocuous sulphate; ss–ij daily with ♏xl–l Tinct. Opii, and an occasional dose of castor or croton to procure one or two motions daily (Wa.). *Opium*, gives more relief than other remedy, gr. ⅛ to ¼ of morphine hypodermically (B.); gr. ij–iv of m, with a moderate dose of castor oil (P.). *Sulphuric Acid*, diluted as a prophylactic, and is useful in the treatment of the disease (B.); conved remarkably efficient when used in association with repeated sulphur s (Wa.). *Calomel*, a full dose, with or without opium, followed in a few by castor oil and a turpentine enema, often affords speedy and marked (Wa.). *Tobacco*, may control, but is dangerous (B.). *Croton Oil*, in rop doses, with sufficient opium to relieve the pain, repeated every 3 hours until free evacuations are produced; proves effectual when other ies fail (Wa.). *Magnesium Sulphate*, for the constipation, and to remove ison from the system; should be combined with *Iodide of Potassium*, he former given ter in die and about two hours after gr. v–x of the This treatment dissolves the lead in the tissues, causes its elimination ntestinal mucus, renders it insoluble after it has entered the intestinal nd quickly removes it from the body (Br.). [Compare the treatment poisoning, *ante*, page 319.]

Prescriptions.

inis, ... ʒ ij.
lph. Dil., ... ℥ j.
imonis, ... ℥ j.
. . . . ℥ iij.
—Tablesp. every hour or two (B.)

℞. Magnesii Sulphatis, ... ℥ j.
Ac. Sulph. Dil., ... ℥ j.
Aquæ, ... ℥ iv.
M. Sig.—Tablesp. every 3 hours (B.); or thrice daily, each time preceded by a 5 to 10 grain dose of Potassium Iodide. (Br.)

Colic, Renal and Hepatic.

Ether, inhaled in paroxysms of hepatic colic (R.). *Chloroform*, inhalatio
in renal and biliary colic, inferior only to morphia injection, superior to opium
warm baths, etc.; two or three administrations may be required (R.). [See als
COLIC, INTESTINAL.] *Counter-irritation*, flying blisters for renal colic (R.)
Opium, small doses with spt. chloroform, every five or ten minutes until th
pain gives way, or morphia hypoderm. (R.) *Turpentine*, has been given wit
benefit in biliary colic (R.). *Dioscorea*, is used successfully in so-called biliou
colic, ♏xv–xxx of the fluid extract. *Water*, warm baths to ease the pain (R.)
Aliment. Withhold all starches and fats. Alkaline mineral waters are usefu
(B.). [Compare CALCULI.]

Coma.

Blisters, in a comatose condition, large blisters or mustard poultices shoul
be applied in quick succession to different parts of the body—chest, abdome
thighs and calves; often very valuable in the critical condition near the end
an acute illness (R.). *Cold Douche*, for stupor of drunkenness or of opiu
poisoning. May have to be repeated if relapses occur. It should be kept
for a long time if pulse and breathing improve, or no worse (R.). *Croton O*
as purgative, ♏ ¼ or ⅓ every hour (R.). *Potassium Bitartrate*, as purgati
when blood is poisoned (R.). *Mustard*, as poultice to the feet and ankles
the coma of narcotic poisoning (P.). *Exercise*. In coma from poisoning t
patient should be persistently walked about. [Compare CEREBRAL CONG
TION, URÆMIA, and the treatment of Narcotic Poisoning, *ante*, page 297.]

Condylomata.

Nitric Acid, ℥j to Oj aquæ, as wash, frequently used (B., R.). *Th*
locally a strong tinct. with gtt. v in water, night and morning, internally,
warts with narrow base and pendulous body. Warts about anus or pudend
either sex, whether syphilitic or not, often rapidly cured by Thuja (P.). In n
syphilitic warts of penis or vulva, I have employed it with satisfaction (
Mercury, Calomel dusted over, after washing with a solution of chlorin
soda (Ricord, R., B.); the nitrate locally or a 20 per cent. oleate (R.).
the chloride, iodide or nitrate as local applications (R.). *Arsenic*, arseni
acid as a caustic (R.). *Carbolic Acid*, as a mild escharotic (B.). *Chro*
Acid, gr. c–℥j aquæ dest.; a good local application (B.). Compare SYPHI
WARTS.]

Conjunctivitis, Catarrhal.

Zinc, a weak solution of the sulphate or acetate as astringent collyrium (
gr. ij ad ℥j aquæ destil. as mild astringent lotion every few hours, with ice loc
in the earlier stage (Roosa). *Borate of Sodium*, gr. v ad ℥j aquæ dest. a g
and mild astringent for ordinary cases. *Boric Acid*, gr. vj ad ℥j each of
camph. and aq. destil., as collyrium (Fox). *Boro-glyceride*, ʒss ad ℥j of
camph. and aq. dest. a very efficient application. See *ante*, page 59. *Car*
Acid, a 5 per cent. solution applied every two hours by spray of steam atom
which dilutes it one-half, an extremely efficient application, relieving the
and contracting the vessels. *Cocaine*, the hydrochlorate in 3 to 5 per cent.
tion or oleate, applied to the palpebral conjunctiva, is a very efficient pallia
especially where much pain and photophobia (Koller). *Alum*, potassa
after acute symptoms subside (Br.); gr. iij–v ad ℥ij aq. destil. brushed ove
conjunctiva twice daily, *Pulsatilla*, ʒj–ij of tincture to ℥iv aquæ as wash
eral times daily, also ♏j–x internally every 3 or 4 hours (P.). *Opium*, the
dropped into the eye relieves pain and improves the condition of the con
tiva (R.); Morphine, gr. j–ij ad ℥j, is often used in collyria with zinc sa
alum. *Mercury*, Calomel dusted over the palpebral conjunctiva, in s
cases; should be finely levigated and dusted from a camel's-hair brush (B.)

oleate of mercury and morphine to the outside of the lids in palpebral conjunctivitis (R.); the red oxide as ointment, gr. x ad ℥j vaseline (Bader); the yellow oxide, gr. viij–x ad ℥j vaseline (Seely). *Cadmium*, as collyrium, gr. ij of the sulphate to ℥j aquæ rosæ (B.). *Tannin*, in glycerin, ʒj ad ℥j, every second day in chronic catarrhal conjunctivitis, presenting diffused injection of vessels with œdema (Hansell). *Silver Nitrate*, solutions of strength gr. j–iv ad ℥j applied by physician to conjunctiva (R.); should not be given to patient. Zinc and copper salts are preferred (B.). *Copper*, the sulphate crystal in chronic cases where great swelling or hypertrophy of the papillary layer. Is too irritating to be entrusted to the patient. *Lead* salts should never be used lest deposits occur in slight abrasions or ulcerations of the cornea. *Sulphates*, of zinc, copper and iron with alum, aa gr. j to ℥j of aq. destil. as collyrium, extremely efficient; in severe cases may be used in saturated solution by the physician (Holmes). *Castor Oil*, a drop placed in the eye often allays the pain and photophobia caused by an irritant (R.). *Belladonna*, locally and internally (B.); Atropine in strong solution, gr. iv to ℥j, is one of the best local applications where mydriasis is not objectionable. *Euphrasia*, as a mild astringent (P.). *Blisters*, behind the ears in bad cases (R.). *Ergot*, the fluid extract locally gives excellent results in acute conjunctivitis (B.). *Staphisagria*, especially in tarsal ophthalmia (P.). *Colchicum*, when gouty diathesis (A.). *Spigelia*, in rheumatic form (P.).

Prescriptions.

℞. Zinci Salphatis, ... gr. ij.
Morphinæ Sulph., ... gr. ij.
Atropinæ Sulph, ... gr. ss.
Aquæ Rosæ, ... ℥j.
M. Sig.—Eye-water. (B.)

℞. Liq. Plumbi Subacetat., . . . ʒj.
Aquæ Destillatæ, ... ʒiij.
M. Sig.—For local use. To be brushed over conjunctiva of everted lids by the surgeon and washed off with water. (*Buller.*)

℞. Hydrarg. Oxidi Rub., . . . gr. x.
Atropinæ Sulph., ... gr. j.
Vaselini, ... ℥j.
M. Sig.—A minute portion as an ointment for the eye. (*Bader.*)

℞. Ung. Hydrarg. Nitrat., . . . gr. xx.
Cocainæ Hydrochlorat., . . . gr. v.
Vaselini Albi, ... ʒij.
Use a fresh ointment, triturate thoroughly, and label "Ointment for the eye."

Conjunctivitis, Diphtheritic.

Zinc Chloride, gr. ij–iv ad ℥j, as collyrium, has succeeded admirably (Wa.). *Atropine*, locally, throughout the disease. Treatment not very effectual (Roosa); is, for severe cases, powerless; cornea sure to be attacked, and liable to slough (Noyes). *Boric Acid*, 4 per cent. solution, as antiseptic, the best application, with *Quinine*, internally in full doses (Noyes). *Iron*, the pyrophosphate for children, ʒj in ℥iij of simple syrup, of which a teasp. thrice daily after meals, with quinine in 1 to 3-grain doses thrice daily, and good food (Derby). *Cold* by compresses, as in purulent ophthalmia, in early stages. *Silver Nitrate* in solution locally, a 10-grain solution or the mitigated stick in the second stage. *Tannin*, gr. xx to the ℥ of glycerin, later on, applied every day, with hot water lotions if corneal complications.

Conjunctivitis, Gonorrhœal.

Zinc Chloride, gr. j–ij ad ℥j aquæ, as collyrium, with marked benefit (Wa.). *Silver Nitrate*, a 2-gr. to the ℥ solution, after syringing out the eye with warm water, followed by ice compresses, in hope to abort the attack, if seen early (Roosa). *Cold*, by ice or wet compresses, essential in the early stage (C.). *Atropine*, may be used from the beginning, as corneal complications begin very early. *Treatment*, generally the same as for Purulent Conjunctivitis. Isolation and cleanliness are of prime importance.

Conjunctivitis, Granular.

Silver Nitrate, the diluted stick (see page 113) applied lightly and quickly (C.); strong solutions to granular lids, gr. xx ad ℥j cautiously when corneal ulcers exist (B.); mild solutions better, gr. v ad ℥j, daily in the papillary form; in miliary trachoma it should not be stronger than gr. ij ad ℥j (Noyes). Applications lose their effect after a time, and should be changed (Roosa). *Copper Sulphate*, the solid crystal lightly touched to the membrane once a day, the favorite astringent and caustic in all forms of trachoma (Roosa); when membrane torpid to other stimulation and when lymphoid substance is predominant. As ointment gr. v–x ad ℥j vaseline, when for use by patient (Noyes). *Alum*, a smooth crystal is a useful daily application (Noyes). *Tannin*, gr. x–xxx ad glycerini ℥j, an application to change to from others (Roosa). *Bismuth* is one of the numerous applications in chronic conjunctivitis and granular lids (B.). *Phytolacca* internally, is undoubtedly efficient in granular conjunctivitis (W.). *Jequirity*, to excite substitutive inflammation. See *ante*, page 55. *Atropine*, gr. ij ad ℥j aquæ, thrice daily, is often advisable where moderate irritation and haziness of the cornea (Noyes). *Hygienic Measures* of great value. Protection by blue or smoked glasses. Rest of eyes, best secured by using atropine collyria. Hot or cold water as local bath frequently. Tobacco must be avoided, also all locations contaminated by impure air. Canthoplasty of outer commissure when lids press on globe.

Conjunctivitis, Phlyctenular.

Mercury. Calomel finely levigated and dusted from a camel's-hair pencil over the membrane in phlyctenular ophthalmia, an excellent local application; which should never be used when iodine is being taken. In more obstinate cases a small bit of Pagenstecker's ointment, the size of a pin-head (Hydrarg. Ox. Flav. gr. j–iij, Vaselini, ʒj), placed between the lids (Noyes). *Ergot*, the fluid extract, applied undiluted, gives excellent results in the phlyctenular ophthalmia of children (B.). *Antimony*. Tartar emetic gr. $\frac{1}{48}$ to $\frac{1}{36}$ 3 or 4 times daily in strumous ophthalmia, with sharp purgation at the outset (R.). *Belladonna*, or Atropine, locally in strumous ophthalmia, of great service in relieving pain; constitutional treatment also required (Wa.). *Arsenic*, invaluable in inveterate cases of strumous ophthalmia, especially when complicated with cutaneous eruptions (Wa.). *Tannin*, finely powdered and dusted over the everted lid, gives remarkably good results in this and other forms of conjunctivitis, causing very little pain and no inflammatory reaction (B.). *Carbonic Acid Gas*, applied to the eye is said to relieve the pain and photophobia of strumous ophthalmia (R.). *Hydrastis*, as lotion, is serviceable when Meibomian follicles are implicated, causing adhesion of lids in the morning (P.). *Eserine*, locally, to reduce the pupil and shut out the light (P.). *Iodine*, is employed locally in strumous ophthalmia, for its alterative stimulation (W.). *Zinc Chloride*, gr. ij–iv ad ℥j, as collyrium, has succeeded admirably in pustular ophthalmia (Wa.). *Zinc Sulphate*, gr. j–iv ad ℥j, is very serviceable; the addition of liquor plumbi improves its efficacy (Wa.). *Rhubarb*, the mistura rhei et sodæ where much disturbance of digestion present. *Tonics*, may be given later, preparations of Cinchona and Iron. *Cod-liver Oil*, in strumous subjects, tends to remove the manifestations of the disease (R.).

Conjunctivitis, Purulent.

Alum, gr. ij ad ℥j aquæ, a sufficient astringent application in ophthalmia neonatorum (Roosa); gr. viij ad ℥j aquæ, applied every ¼ or ½ hour in the purulent ophthalmia of children, its success depending on the frequency of the application (R.). *Copper Sulphate*, gr. j ad ℥j aquæ camph. as collyrium in purulent ophthalmia of infants (Wa.). *Silver Nitrate*, gr. iij–x ad ℥j aquæ destil., rarely so strong as gr. x, once daily applied by brush to everted lids in purulent ophthalmia of infants (Noyes); solution gr. ¼ ad ℥j twice daily under lids (Meigs)—by many it is considered needless and injurious (Roosa). *Boric Acid*, a 4 per cent. solution, as antiseptic, is all that is necessary in mild cases; in others it is the proper fluid for cleansing the eye (Noyes.). *Atropine*, when the cornea becomes invaded, and shows haziness, a solution gr. ij ad ℥j, must be instilled every 3 hours (R.). *Cold*, by ice or wet compresses, essential in the early stage of acute purulent ophthalmia (C.). *Cleanliness*, a matter of great importance. As the discharge is infectious the patient should be isolated and care taken to prevent inoculation of the other eye therewith.

Prescriptions.

℞. Sodii Boratis, ... gr. xij.
Zinci Sulphatis, ... gr. j.
Aquæ Camph., ... ʒj.
Aquæ Destillat., ... ℥j.
M. Sig.—Apply to lids 2 or 3 times daily in oph. neonatorum, with solution of Silver Nitrate, gr. ¼ ad ℥j injected under lids twice daily. (Meigs.)

℞. Sodii Boratis, ... gr. iij.
Aquæ Rosæ,
Aquæ, ... aa ℥j.
M. Sig.—Apply beneath lids three or four times daily after cleansing.

℞. Atropinæ Sulph., ... gr. j.
Glycerini ʒss. Aquæ, ... ʒij.
M. Sig.—Two drops into the eye.

Constipation.

Nux Vomica, gtt. j–ij of tincture bis vel ter in die (R.); gtt. v–x in a glass of cold water before breakfast and dinner, often overcomes the most obstinate constipation (P.); especially useful when great fecal accumulations from torpor of bowel (B.). *Sulphur*, gr. x with confectio sennæ, often succeeds after other remedies fail (R.). Sulphurous mineral waters (B.); or sulphates in purgative waters; frequent small doses (R.). *Podophyllum*, the most generally used cathartic when deficient secretion (B.). Gr. 1/12 to ⅙ night and morning, when constipation with nervous and bilious headaches (P.). *Senna*, as in the pulvis glycyrrhizæ compos. U. S., which may be taken in doses of a teasp. to a tablesp. as required, and kept up for months (Goodell). *Mercury*, Calomel or gray powder as cathartic (R.). *Hydrastis*, very valuable, when constipation referable to a sluggish liver (P.). *Magnesium*, the bi-carbonate, a useful and mild aperient (R.). *Alum*, cheap and serviceable laxative (B.). *Aloes*, in minute doses, in pill with *Sulphate of Iron*, as the official Pil. Aloes et Ferri, is one of the best agents in the management of chronic cases:—purgation should not be aimed at. *Ipecacuanha*, gr. j every morning, fasting, when great torpor of bowel (R.). *Cocculus*, flatus, hard, lumpy motions (P.). *Turpentine*, in purely atonic constipation, with gaseous distention of colon, has triumphed when all other remedies failed (P.). *Physostigma*, very effective in intestinal torpor (B.). *Stillingia*, ♏x of fluid extract in habitual constipation (B.). *Castor Oil*, a mild, efficient cathartic (B.). *Ammonium Chloride*, in the so-called bilious state, with constipation (B.). *Arsenic*, small doses (♏ij) of Fowler's solution often overcome constipation (R.). *Belladonna*, gr. ½ of the extract at night, in habitual constipation (B.); gr. ⅙–¼ once a day, especially when dyspepsia (R.). Acts directly on the bowel as a stimulant (P.). *Croton Oil*, the most efficient cathartic, when simple impaction without inflammation. Gtt. j–ij (B.); when evacuation of blackened feces (R.). *Cascara Sagrada*, the fluid extract in doses of ʒj, produces large, soft evacuations without griping, and leaves behind it a laxative influence. *Frangula*, in similar doses, is equally efficient, but if from a fresh bark may produce griping. *Cathartics*, especially confectio sennæ, pil. rhei compos., pil. aloës, the comp. cathartic pill, as well as those above (B.). Purgation as usually practiced denounced by editor of the *Lancet*, October 1, 1870. *Saline Waters*, are useful (B.). Pullna, Friedrichshall, or Hunyadi; the first two with milk, are good for children (R.). *Enemata*, of soapsuds and salt, or a pint of cold water (B.); or turpentine, castor oil, aa ℥ss, to Oss–j of gruel (P.). The habitual use of warm enemata increases torpor of the bowels (R.). *Tamar-Indien*, a favorite mild aperient, is proprietary, and supposed to contain cocculus, Glauber's salts, etc. *Aliment*, important in habitual constipation; corn bread, cracked wheat, oatmeal, bread of unbolted flour, fruits, green corn, tomatoes, and celery. ½ dozen each of almonds and raisins daily. A glass of cold water before breakfast may overcome habitual constipation (B.). An orange or a smoke after breakfast (R.). Tobacco habitues rarely suffer from constipation. [Compare INTESTINAL OBSTRUCTION.]

Prescriptions.

℞. Ext. Colocynth. Co., . . . gr. xij.
Ext. Belladonnæ, ... gr. ij.
Ext. Gentianæ, ... gr. vj.
Olei Cari, ... gtt. iij.
Ft. pil. vj. Sig.—One pill at bedtime.
(Goodell.)

℞. Podophylli Resinæ, . . . gr. ij.
Quininæ Sulphatis,
Ext. Aloes Aquosi, . . āā gr. viij.
Fellis Bovini, ... gr. xvj.
Ft. pil. no. xvj. Sig.—One or two at bedtime. (Goodell.)

℞. Ext. Cascaræ Sag. Fl., . . ℥j.
Ext. Belladonnæ Fl., . . . ʒj.
Tinct. Nucis Vom., . . . ℥ij.
Syrupi et Aquæ, . . āā *ad* ℥iv.
M. Sig.—Teasp. thrice daily in obstinate constipation. (Clarke.)

Castor Oil Emulsion.

℞. Ol. Ricini,
Glycerini, ... āā ʒj.
Tinct. Aurantii, ... ♏xx.
Tinct. Senegæ, ... ♏v.
Aq. Cinnamomi, . . . *ad* ℥ss.
M. ft. emulsio. Sig.—One dose.

Artificial Hunyadi Water.

℞. Magnesii Sulph.,
Sodii Sulph., ... āā ℥ss.
Potas. Sulph., ... gr. ij.
Sodii Bicarb., ... gr. viij.
Sodii Chloridi, ... gr. xx.
Aquæ, ... q. s. *ad* ℥viij.
M. Sig.—A winegl. before breakfast.

Convalescence.

Lime, as lime-water, or the carbonate, in convalescence from serious diseases (R.). *Quinine* or *Hydrastine*, to promote digestion and appetite (B.). *Fats*, especially cod-liver oil (R.). *Alcohol*, before or during meals (R.). *Koumiss*, possesses great value (B.). *Bitters*, especially gentian and calumba (B.); the latter especially when stomach weak (R.). *Eucalyptus*, a serviceable tonic (B.). *Coca*, ʒss–ij of the fluid extract as a dose (B.). *Guarana*, gr. xv–ʒj may be given (B.). *Opium*, as laudanum, injected per rectum, for insomnia of convalescents (R.). *Sea-Baths*, valuable in many cases (R.). *Diet*, requires the most careful attention; the prevalent error of giving food of difficult digestion too early must be guarded against, especially in intestinal and gastric disorders. The strictest moderation should be enjoined. The symptoms must be watched closely, and combated by appropriate medication. [Compare ADYNAMIA for Tonic Prescriptions.]

Convulsions.

General Directions.—In all cases, horizontal posture, fresh air, loosen the clothing; insert a plug of soft wood, or a cork, between the teeth, to prevent biting the tongue; sprinkle the face and chest with cold water. *Epileptic.*—The general directions above will usually suffice. [See also EPILEPSY.] *Hysterical.*—The diagnostic peculiarities are: pupils not dilated, but are sensitive to light; no wounding of tongue; face not livid; pulse usually normal. [See also HYSTERIA.] *Infantile.*—Administer some anti-spasmodic, as Ether, alone or combined with Musk or Belladonna; then search for any mechanical cause, as a pin in the dress, etc. Lance gums, if dentition the cause (A.). [See CONVULSIONS, INFANTILE.] *Uræmic.*—[See URÆMIA; PUERPERAL CONVULSIONS.]

Convulsions, Infantile.

Belladonna, is of the highest value in certain congestive forms, as in fits due to the irritation of teething, or those referable to whooping-cough (P.). *Ignatia*, is efficient in convulsions of children from intestinal irritation, no cerebral congestion being present (P.). *Valerian*, has been successfully used when from worms, to which parasites it is fatal (P.). *Potassium Bromide*, in all forms of convulsions in children (R.); children bear it in large doses, gr. v thrice daily or oftener for a child a year old in convulsions from teething (Br.). *Chloral*, in large doses, gr. v, by mouth or rectum (Br.); best used as a suppository rather than by liquid injection, and often very useful (R.). It gives better results han any other agent. *Chloroform*, inhalations of great service (R.); useful in ll forms (B.); should be used to arrest the convulsion and prevent recurrence A. A. Smith). *Alcohol*, has remarkable power in arresting convulsions of denition; small doses of wine or brandy (Wa.). *Asafetida*, in the convulsions of eething, a small portion in enema, appears to mitigate them (Wa.). *Opium*, fficient, but dangerous in young children. *Veratrum Viride*, has been emloyed successfully (R.). *Amyl Nitrite*, gtt. v with gr. ¼ of morphine used in ne case as a last resort, after five hours' convulsions in a child of 18 months, hich resulted in producing quiet sleep (Engel). *Hot Baths*, are important, ith cold affusions or ice to the head (B.). *Spinal Ice-bag*, may be very effiient (R.).

Prescriptions.

℞. Chloralis Hydratis, . . . gr. v.
Lactis, ... ℥j.
M. Sig.—As rectal injection. Or the ose may be made into a suppository with acao-butter and inserted well up into the ectum.

℞. Sodii Bromidi,
Chloralis Hydratis,
Sodii Bicarb., ... āā gr. viij.
Aquæ, ... ℥j.
M. Sig.—A teaspoonful every hour to a child under four months old.

Corneal Opacities.

Cadmium, is said to promote their absorption; gr. ij of the sulphate to ℥j of ose-water as collyrium (R., Wa.). *Mercury*, Calomel by insufflation, or the ed iodide gr. ij, cerate gr. xl, oil gtt. xx, as ointment, successfully used (Wa.); eak solutions of the bichloride, or ointments of the oxides, gr. ¾ ad ℥j, as emedies, among many others to hasten their absorption in recent cases (Arlt). *Oils*, eel-liver and cod-liver oils, ox-gall, juniper oil, oil of turpentine combined ith olive oil, and others, dropped into the eye once or twice daily for the same urpose (Arlt). *Opium*, the wine at first, then insufflations of calomel and red recipitate or yellow oxide of mercury ointment, most frequently used by me in ecent cases (Arlt). *Potassium Iodide*, as ointment with carbonate of potassium fter cod-liver oil or oil of turpentine with olive oil, in cases of longer standing Arlt). *Silver Nitrate*, gr. v–x ad ℥j aquæ, as lotion (C.). *Iodine*, internally nd as collyria, has been efficacious, especially in strumous cases (Wa.). *Sodium Chloride*, gr. x ad ℥j aquæ destil., of which ♏v–x injected subconunctivally, to hasten disappearance of turbidity (C.). *Operative Measures*, nly in case of incrustations, as of lead and lime, situated superficially, by emoval of epithelium and anterior elastic layer. Deeper interference may lead o suppurative keratitis. Excision of opaque cornea and transplanting of one rom an animal's or a recently enucleated human eye (keratoplasty), has always ailed. Artificial pupil by iridectomy, for central opacities which are unreovable. Tattooing to relieve deformity of disfiguring leucomata (Arlt). Pannus nd leucoma are best let alone (D.). *Stenopaic Spectacles*, for semitransparent pacities in pupillary region (Donders). [Compare KERATITIS.]

Corns.

Silver Nitrate, solid, after soaking and paring (Wa.); the best application for soft corns, and very irritable ones (D.). *Acetic Acid*, strong, to remove corns (Wa.). *Mercury*, corrosive sublimate in alcoholic solution locally to remove corns (Wa.).

Iodine, gr. xl, ad ℥j alcoholis, locally (Wa.). *Poultices* are useful; or a plaster of soft material with hole in centre (D.). *Water*, hot and cold, alternately applied to inflamed corns. Keep a corn thin by frequent washing and paring. In performing the latter operation, the knife should work downwards to the apex of the corn, so as to remove pressure from its centre.

Prescription.

℞. Acidi Salicylici, ...	gr. xv.
Extract. Cannabis Ind., . .	gr. vijss.
Alcoholis, 90°, ...	♏xv.
Ætheris, 62°, ...	♏xxxvij.
Collodii Flexilis, ...	♏lxxv.

Mix, and keep in closely-corked vial. Paint the corn every other day for a week then it can be easily squeezed out.
(*Vigier.*)

Cough.

Opium, in some form, is much used in cough-mixtures; morphine and gl[illegible]cerin to fauces (B.); moderate doses only are useful in irritative affections of t[illegible]e air-passages, to allay irritation and hypersecretion, but it may do even fa[illegible]l mischief in cases where secretion is copious and expulsory power feeble (P[illegible]); opiates inadmissible when with copious expectoration there is any indication of bronchial congestion (Wa.); very useful in violent and frequent cough w[illegible]th little rhonchus and no signs of obstructed oxidation; also, when cough is due to red, inflamed and ulcerated throat; opium or morphine given so as to cling [illegible]or some time in contact with the pharyngeal structures (R.). *Codeine* is often e[illegible]ficient in cough when morphine cannot be borne (Br.). *Apomorphine Hyd[illegible]ochlorate*, very valuable in cough where a persistent hacking without expecto[illegible]ation, or with difficult expectoration. The dose is only gr. $\frac{1}{20}$ to $\frac{1}{10}$ in the 24 ho[illegible]rs. The solution rapidly alters unless a few drops of hydrochloric acid are ad[illegible]ed (Stocquardt). *Terpine Hydrate*, in bronchial cough, and night-cough fr[illegible]om habit, is very efficient in a 2-grain dose at bed-time, repeated early in [illegible]he morning (Boyland). See under BRONCHITIS, CHRONIC, for formula. *Acon[illegible]ite*, irritable, tickling throat-cough; short, dry cough of asthmatics, with anxi[illegible]ous look, full, strong pulse (P.). *Belladonna*, often useful. No indications ([illegible]R.). Internally and externally as plaster to the chest, very serviceable in spasmo[illegible]dic and nervous coughs (Wa.). *Hyoscyamus*, very useful in spasmodic, tickl[illegible]ing night coughs (P.). *Hydrocyanic Acid*, for nervous, irritable cough, and co[illegible]ugh of phthisis and mother's sympathetic cough (B.); no more certain palliative for simple nervous cough due to irritable state of the system (Stillé); a valua[illegible]ble adjunct to ordinary remedies in cough of phthisis (Wa.). *Potassium Cyan[illegible]ide*, is equally useful, gr. iij with ℥j each of Ext. Grindeliæ Fl., Syr. Scillæ and S[illegible]yr. Tolutan., makes a good non-opiate cough-mixture, of which the dose is [illegible] ʒj every 4 hours (Waugh). *Prunus Virginiana*, has some influence due to [illegible] its hydrocyanic acid; is much used in cough-mixtures (B., P.). *Laurocerasus*, u[illegible]sed as substitute for hydrocyanic acid in spasmodic coughs (B.). *Conium*, suppo[illegible]sed to be useful (R.); is very useful in spasmodic cough (Wa.). *Ipecacuanha*, the[illegible]e fl. ext. for troublesome night-cough (B.); in obstinate winter-cough, with wheez[illegible]ing, the wine as spray to fauces efficacious (R.); in coughs of childhood ipecac is [illegible] one of the most generally serviceable expectorants we can use (Wa.). *Lobelia*, [illegible] dry cough, continued tickling sensation, even in sleep (P.). *Sanguinaria*, combi[illegible]ned with hyoscyamus, in nervous, spasmodic cough (P.). *Senega*, as a stimul[illegible]lant expectorant in the cough of chronic bronchitis and subacute chest affectio[illegible]ons. *Gelsemium*, excessive irritability of the respiratory centre (R.); often remarka[illegible]bly relieves convulsive or spasmodic, reflex, nervous coughs (B.). *Nux Vom[illegible]ica*, has specific action on the pneumogastric, and is one of the most efficient re[illegible]medies in cough of any kind, whether from bronchitis, pneumonia, phthisis[illegible]s or emphysema, but especially in nervous coughs, and periodic coughs which c[illegible]ome on in evening and stay all night. (Jour. de Méd.) *Pulsatilla*, as *anemon[illegible]ine*, ½ gr. and gr. doses, very useful in irritative cough, asthma, whooping-co[illegible]ugh (P.). *Iodine*, by inhalation for children in hoarse, hollow cough, wheezing ([illegible]R.). *Alum*, internally in spasmodic cough, gr. x to ℥j aq. as spray, in chronic co[illegible]ugh

(R.). *Potassium Bromide*, serviceable in various reflex coughs (uterine, renal, etc.), and in cough of phthisis occasionally ameliorative as a gargle (B.). *Cubebs*, ʒss–j of the tinct. in half-glass of linseed tea thrice daily, often cures like a charm the coughs of chronic catarrh, of emphysema, or acute catarrh, or following an attack of influenza (R.). *Asafœtida*, Garrod ascribes its value to the sulphur oil in it (P.). Very serviceable in after-cough from habit, and in mother's sympathetic whooping-cough (B.). *Carbolic Acid*, as spray, a 5 per cent. solution in a steam atomizer will often prevent as well as cure a cough from cold. *Valerian*, in asthmatical and hysterical coughs (P.). *Chloroform*, with morphine and molasses in paroxysmal dry cough. May be painted on throat also (R.); in irritable reflex cough the vapor of a teaspoonful of the spirit may be inhaled from the surface of hot water and repeated every five minutes for four or five times (B.). *Chloral*, in convulsive coughs, ameliorates symptoms after hypnotic effect (Wa.). *Camphor*, equal parts of camphor and chloral triturated together are said to allay spasmodic cough when painted over larynx (B.). *Glycerin of Tannin*, applied to throat when chronically inflamed and so producing cough; often the case with children (R.). *Grindelia*, useful in cough of habit and spasmodic cough (B.). *Squill*, in catarrhal cough; should not be employed until active inflammation has subsided (Wa.); the syrup or vinegar of squill is the best preparation for cough with tickling in the throat (P.). *Cod-liver Oil*, in chronic coughs (R., Wa.). *Lactucarium*, the syrup as vehicle in cough-mixtures (B.). *Chamomile Oil*, gtt. ij–viij, in coughs due to heightened reflex irritability, especially in hysterical women (P.). *Pix*, *Tar-water*, in winter cough, especially when paroxysmal (R.). Allays the cough of bronchitis and phthisis (P.). *Emplastrum Picis*, as rubefacient and counter-irritant in chronic coughs (Wa.). The frequency and violence of nervous coughs may be controlled by a determined effort of the patient's will. [Compare BRONCHITIS, PERTUSSIS, PHTHISIS.]

Prescriptions for Cough Mixtures.

Adults.

℞. Spiritus Etheris Nitrosi, . . ʒ ij.
Vini Ipecac., ... ʒ ss.
Tinct. Opii Deodorat., . . ʒ j.
Syrupi Tolutani, ... *ad* ℥ ij.
M. Sig.—A teaspoonful twice or thrice daily. (*Bowditch.*)

℞. Liq. Morph. (Magendie), . ʒ j.
Syr. Scillæ Comp.,
Syr. Tolutani, ... āā ℥ j.
Syr. Ipecac.,
Spt. Lavand. Co., . . . āā ℥ ss.
Spt. Limonis, ... ʒ j.
Syr. Pruni Virgin., . . . *ad* ℥ vj.
M. Sig.—A teasp. as required.
Each dose has of Morph. gr. $\frac{1}{24}$.

Children.

℞. Mist. Glycyrrh. Co., . . . ℥ ij.
Syr. Pruni Virginian.,
Syr. Tolutan., ... āā ℥ j.
M. Sig.—Half teaspoonful 3 or 4 times daily for infants, teaspoonful doses at 1 to 2 years, larger doses for older children. (*Potter.*)

℞. Tinct. Opii Deodorat.,
Vini Antimonii, ... āā ʒ ss.
Ext. Valerianæ Fl.,
Syr. Simplicis, ... āā ʒ ij.
Aquæ, ... ℥ j-s.
M. Sig.—A teaspoonful every hour or two until cough controlled. For those 4 years and upward. (*Meigs & Pepper.*)

Coxalgia.

Barium Chloride, in considerable doses (gr. j–ij) persevered in for a month, thought to be a most valuable remedy in scrofulous diseases of joints (Wa.). *Sulphuric Acid*, ʒj ad ℥j adipis, as ointment, persevered in, has resulted in great benefit. A powerful irritant (Wa.). *Counter-irritation*, by blisters around the hip, with perfect rest in the straight posture, cod-liver oil, etc. (D.). *Iodide of Iron*, in scrofulous disease of the joints, with cod-liver oil and nutritious diet (Wa.). *Iodoform*, very successfully used by many continental practitioners in scrofulous diseases of the joints (Wa.). *Cod-liver Oil*, the remedy on which most reliance is to be placed (R.). [Compare ABSCESS, CARIES, SUPPURATION, SYNOVITIS.]

Croup, Catarrhal.

Aconite, valuable (R., Wa.); has been employed with the best results ([illegible]); from gtt. ½ to j every half-hour, until an impression is made on the fev[illegible]r-movement, then every hour or two (B.). *Hot Water*, applications beneath [illegible]he chin and along the whole course of the larynx (Wa.). Hot fomentations [illegible] or turpentine stupe to throat (El.); hot bath (95°–102°) in the paroxysm a go[illegible]od method (M. & P.). *Potassium Bromide*, locally, a solution by atomization h[illegible]as proven highly efficient in spasmodic croup (Wa.). *Lobelia*, has been used w[illegible]th occasional success (P.). *Ipecacuanha*, the syrup or fluid extract as an eme[illegible]tic at the outset (El.); is a slower emetic than tartar emetic (P.); the syrup [illegible] to vomiting during the paroxysm, and ♏v–x every 2 or 3 hours next day (M. [illegible] & P.). [Compare LARYNGISMUS STRIDULUS.]

Prescriptions.

℞. Potassii Citratis, ... ʒj.
Syr. Ipecac., ... ʒij.
Tr. Opii Deodorat., ... gtt. xij.
Syr. Simplicis, ... ʒij.
Aquæ, ... ℥jss.

M. Sig.—Teaspoonful every two hours at 2 years of age. In severe form of spasmodic laryngitis. (*M. & P.*)

℞. Tinct. Belladon., ... gtt. iv.
Tinct. Opii Camph., . . . gtt. l.
Pulv. Aluminis, ... gr. vj.
Syr. Acaciæ, ... ℥ss.
Aquæ, ... ℥jss.

M. Sig.—Teaspoonful every 2 or [illegible] 3 hours at 6 months old when cough frequ[illegible]nt and harassing. (*M &* [illegible])

Croup, Membranous.

Mercury, a remedy of established value, gr. ss–j of calomel, with gr. ⅙—¼ of ipecac, according to age, every 2 hours, with local and other general me[illegible]as-ures, especially the use of a hot (70°–75°) and moist atmosphere (Wa.). T[illegible]he sub-sulphate, given early, is the best emetic, gr. iij–v; calomel is strongly urged[illegible] as a laryngeal sedative and aplastic agent, allaying laryngeal spasm and prevent[illegible]ng formation of membrane (B.). *Alum*, one of the best emetics in this disease[illegible] a teasp. in honey or syrup, repeated every 10 or 15 minutes until it operates (M[illegible] & P.); a very useful and non-depressant emetic (B.). *Sanguinaria*, by ma[illegible]ny considered specific, is undoubtedly the best emetic for this disease (P.); is [illegible]oo harsh and too uncertain in action (B.). *Tartar Emetic*, as an emetic, [illegible]as established value in croup (Wa.). Is injurious; too depressant (B.). *Po[illegible]as-sium Chlorate*, as alkali, after emetics, the most reliable internal remedy, [illegible] gr. ij–iij every 2 hours to a child of 4 years (M. & P.). *Chloride of Iron*, may [illegible] be combined with the preceding, in doses of 3–5 drops of the tincture, at the sa[illegible]me age (M. & P.). *Emetics*, besides the above: *Copper Sulphate*, in small frequ[illegible]ent doses (R.); *Ipecacuanha*, inferior to mercury (B.). In severe cases, vomit[illegible]ing should be caused 3 or 4 times a day, and should be commenced early ([illegible]R.). *Apomorphine*, effective, but highly dangerous (B.). *Senega*, is considere[illegible]d a valuable auxiliary (P.), has been employed (R.). *Quinine*, in full doses is hig[illegible]hly useful (B.). *Sulphurous Acid*, as spray, hourly or more frequently (R.). *Tan[illegible]in*, a 5 per cent. spray, several times a day for 15 or 20 minutes (R.). *Lactic A[illegible]cid*, as solvent of membrane (B). *Iodine*, the tincture, externally, affords g[illegible]reat relief, and tends to prevent formation of false membranes (Wa.). *Wate[illegible]*.—Warm bath, hot fomentations or compress to throat. Watery vapor in ro[illegible]om. Steam inhalations, with a few drops of Iodine or Bromine. *Diet*.—Water [illegible]nly in small quantities during attack. Supporting diet may be required afterwa[illegible]rds. *Lime-water*, by vaporization, or inhalations of the vapor of slaking lime f[illegible]r a few minutes in every hour, or some other alkaline solution during the w[illegible]*ole* treatment (M. & P.). *Tracheotomy*, fully justifiable, 21½ per cent., recove[illegible]ed, out of 1024 operations; should be done when paroxysms become very freq[illegible]ent, and dyspnœa is rather persistent than paroxysmal (M. & P.). [Com*pare* LARYNGITIS, DIPHTHERIA.]

Prescriptions.

Pulv. Sanguinariæ, ... gr. xx.
Pulv. Ipecac., ... gr. v.
Syr. Ipecac., ... ℥ ij.
M. Sig.—A teasp. every ¼ hour until
esis, then ½ teasp. every hour. (P.)

℞. Acidi Lactici, ... ʒ iijss.
Aq. Destillat., ... ℥ x.
M. Sig.—To be used as a spray, or applied by a mop.
(*London Throat Hospital.*)

Cyanosis.

Amyl Nitrite, by inhalation, often gives marked relief (P.). *Quebracho*, in at from asthmatic attacks of consumptives, lessened the cyanosis or entirely lieved it (Röhrer). *Leeching* is of service, in a manner not easily understood .). *Treatment* must depend on the nature of the lesion or disease giving rise the cyanotic condition (A.).

Cystitis, Acute.

Belladonna, is a good remedy in almost every form of vesical irritation (G.); ten the vesical mucous membrane is irritable (B.); very useful in recent tarrh from chill, with pain (P.). *Cantharis*, in large doses causes inflammaon of the urinary tract, but gtt. j of the tincture every hour will often relieve sical catarrh (A. A. Smith); in small doses continued, very efficient (B.); t. j–v of the tincture thrice daily, when bladder is irritable, its sphincter weak, d pain along the urethra (P.).; may be employed in cystitis with benefit (R.); e best remedy in small doses for acute cystitis. *Aconite*, for febrile symptoms ., P.). *Quinine*, often useful for acute symptoms (B.). *Iodoform*, in supsitory for painful cystitis (R.). *Opium*, a rectal injection of starch and launum will subdue pain and prevent the frequent micturition (R.); opium is ngerous if kidneys are diseased (P.). *Alkalies*, the citrates and bicarbonates urine is highly acid; stop when it becomes alkaline (R.). Liquor potassæ in rley-water or in a decoction of Triticum repens, preferred to all other alkas; urine must be maintained at a neutral or very slightly acid reaction hompson). *Cannabis Indica*, an excellent anodyne in all bladder cases, ving specific effect on that organ. *Rest* in horizontal posture, mucilaginous inks, hot fomentations and hip-baths, from 100° to 110°, laxatives for the wels, light food. Milk-diet often necessary, especially in children. [Comre BLADDER IRRITABLE, CALCULUS, DYSURIA, ENURESIS, HEMATURIA.]

Prescriptions.

Atropine Sulphatis, ... gr. j.
Acidi Acetici, ... gtt. xx.
Alcoholis,
Aquæ, ... āā ℥ ss.
M. Sig.—Four drops in a winegl. of
ter before each meal. (G.)

℞. Pulv. Opii, ... gr. xij.
Camphoræ, ... gr. xxx.
Ext. Belladon., ... gr. iij.
Ol. Theobrom., q. s.
M. et div. in supposit. no. vj.
Sig.—One at bed-time.

Cystitis, Chronic.

Benzoic Acid, and the benzoates, in chronic cystitis from any cause, when ne is alkaline (B.); has some balsamic character, and is useful in some cases chronic cystitis; gr. xxiv at least in the day, in pills made with glycerin hompson). *Sodii Benzoas* ʒj in Tinct. Gelsemii ʒij–iij and water to ℥vj kes an excellent wash for painful cystitis of old men with enlarged prostate. fluid ounce should be warmed and injected, and retained 20 to 30 minutes opeland). *Alkalies*, when urine is acid; the liquor potassæ, with hyoscyamus an anodyne, preferred notwithstanding its chemical incompatibility, to conl painful and frequent micturition (Thompson); bicarbonates or citrates ter, as the strong reaction of liq. potassæ unfits it to be given in doses sufiently large to affect in any great degree the reaction of the urine (R.).

Triticum, is very efficient as an internal remedy, ℥ij–iv of the rhizome boiled in a quart of water until reduced to a pint, this strained to be taken in four doses in the 24 hours (Thompson); a very useful remedy (Pancoast). *Buchu*, is probably the most efficient of the urino-genital remedies, the fluid extract in doses of ♏x–ʒj (B.); the best drug in chronic cystitis, especially when the catarrh implicates the ureters or the kidneys themselves, producing considerable muco-purulent discharge (P.). *Uva Ursi*, is decidedly effective (P.); is less so than Buchu (B.). *Stigmata Maydis*, an infusion, ℥ij ad Oj, wineglassful every 3 or 4 hours, has been used internally with considerable success (Dessein). *Pareira*, considered superior to Uva-Ursi (Brodie); often very successful (P.). *Chimaphila*, is often very efficient, but is more actively diuretic than the preceding named remedies (B.); by many practitioners it is considered the best remedy for chronic cystitis. *Copaiba*, is very useful by virtue of its local action on the mucous membrane, but objectionable for its nauseous taste and resulting gastric disturbance (B.). *Cubeb*, is often useful, from its stimulating effect (P.). *Turpentine*, has been useful in many cases (R., P.); when cystitis due to urethral inflammation or prostatic disease (B.). *Juniper*, the oil is indicated under the same conditions as is turpentine (B.). *Eucalyptus*, there is no more efficient remedy in chronic cystitis than this (B.); the oxygenated oil of Merck is best in doses of 3 drops on sugar every 6 or 8 hours. *Salicylic Acid*, in large doses, either internally or by injection into the bladder, is most efficient (B.); the acid or salicylates often useful to prevent decomposition (P.). *Carbolic Acid* and sulpho-carbolates to preserve the urine sweet (R.). *Sulphites* will accomplish the same object (B.). *Silver Nitrate*, by intra-vesical injection, gr. j ad ℥iv to begin with, increased gradually to gr. ¼ ad ℥j at most (Thompson). Stronger solutions are advocated by Professor Richardson of New Orleans, and Professor Gardner of McGill College, Montreal. In the writer's experience a 5 gr. to ℥j solution, used as a vesical wash, has been promptly efficient in curing many cases which resisted other treatment for months. It sometimes produces serious symptoms, and it is therefore well to have a neutralizing solution of sodium chloride on hand for use if required. *Other Injections* which may be used to wash out the bladder, are—Lead Acetate, gr. j to ℥iv of warm water, once daily; Nitric Acid, dilute, ♏j–ij to the ℥j of water; Tannic Acid, gr. j to ℥j; Borax, ʒj in ℥ij of glycerin and ℥ij of water, of which ℥ss to ℥iv of warm water for one injection; Quinine, gr. j–ij to the ℥ of water, with a drop of acetic acid. All injections must be used with great care, not more than ℥ij forced in at once, and that very slowly. Use flexible catheter, warm solutions, and a rubber injecting-bottle with long nozzle and stop-cock (Thompson). Washing the bladder is of great value (R.). *Evacuation* of the urine, some of which is often retained in the bladder, is a matter of great importance. *Ergotin*, hypodermically, increases the contractile power of the bladder, and enables it to empty itself more perfectly (Langenbeck). *Pichi*, the fluid extract, ♏xx to xxx four times daily, gave excellent results in bad cases of long standing, urine being alkaline, ammoniacal, ropy and purulent (Delamere.) [Compare BLADDER IRRITABLE, CALCULUS, DYSURIA, ENURESIS, HEMATURIA.]

Prescriptions.

℞. Uvæ-Ursæ Fol.,
Pareiræ Radicis, ... aa ℥j–ij.
Sig.—Boil in 3 pints of water until reduced to a quart, then strain, and take 1 or 2 wineglassfuls 3 or 4 times daily.
(*Thompson.*)

℞. Ext. Tritici Fluidi, ... ℥ij.
Syr. Amygdalæ, ... ℥ij.
M. Sig.—A dessertsp. in water 5 or 6 times daily. (*Pancoast.*)

℞. Quininæ Sulphatis, ... ʒss.
Acaciæ, ... ʒij.
Morphinæ Sulphatis, . . . gr. j
Aquæ, ... q. s. *ad* ℥iij.
M. Sig.—A tablesp. to 3½ ounces of warm water, which inject in 3 parts, daily.

℞. Sodii Boratis, ... ʒj.
Glycerini,
Aquæ, ... aa ℥ij.
M. Sig.—Tablesp. in four ounces of warm water as an injection.

Ol. Terebinth., ... ℥ss.
Camphoræ, ... gr. xv.
Ext. Hyoscyami, ... gr. ss.
Fiat massa. Sig.—Take a piece the size
a cherry-stone morning and evening.
(*Chauvel.*)

℞. Argenti Nitratis, ... gr. vij.
Aquæ Destillat., ... ℥iijss.
M. Sig.—Injection every third or fourth day after washing the bladder out with warm water. (*Ricord.*)

Cysts.

Iodine, injection very effective in cysts of neck, and sometimes in unilocular rarian (B.); ℥x after tapping (R.). *Silver Nitrate*, gtt. v–x of solution, ℈j–ij injection, will cure after setting up inflammation (B). *Galvano-puncture*, ill permanently occlude cysts of neck (B.). *Aurum Chloride*, may sometimes ure ovarian dropsy (B.). *Remedies* internally have all been proved worthss (E.).

Deafness.

Quinine, cures some forms, and often causes deafness (Brown-Séquard.). *lycerin*, for dryness of meatus; also to form a film to ruptured tympanum R.); either alone or in combination with olive oil (P.); effects are temporary Wa.). *Tannin*, the glycerite as application for throat deafness (R., Wa.). *olchicum*, when from gout in ear (A.). *Cantharides*, as ointment; gr. xxx d ℥j adipis, below and behind the ear bis die, with alterative mercurial treatent, in deafness from thickened tympanum (Wa.). *Gargles*, in throat-deafess, are of great value; potassium nitrate, borax, etc., in sthenic; tincture of apsicum added in nervous forms; hydrargyrum perchloride, when from econdary syphilis (Wa.). *Water*, washing in warm water, in deafness from eneral debility (Toynbee). *Faradization*, of the ear in nervous deafness, in hich slight results only to be expected from the treatment (R.). Demands e utmost caution (Wa.). *Collodion*, contractile, applied to the membrana ympani, in deafness from relaxation of the membrane, has exerted a permaently beneficial influence, even in cases of long standing (Wa.). *Turpentine*, tt. xl in ℥ss glycerin, a few drops into the meatus, in deafness depending on eficient secretion of cerumen, results in much benefit (Wa.). *Morphine*, r. ss sprinkled on surface behind the ear denuded by a small blister, has roved curative in chronic deafness, after all other remedies had failed (Wa.).

Delirium.

Belladonna, delirium of typhus and other fevers (R.); severe forms of derium (P.). *Hyoscyamus*, delirium of typhus; mild, less inflammatory form, allucinations, nervous excitement, little cerebral congestion (P.). *Stramoium*, in wild and furious delirium of puerperal mania, with general restlessess and suicidal or destructive tendency (Wa.); no drug deserving of more onfidence in the greater number of maniacal cases (Cullen). *Opium*, in raumatic delirium, as a rectal injection, combined with tartar emetic in fevers, r, better still, morphine hypoder. Laudanum in low, muttering delirium (R.); s regarded with suspicion (P.). *Cannabis Indica*, the extract, in doses of gr. –½ in nocturnal delirium occurring in softening of the brain (Wa.). *Potasium Bromide*, in delirium resembling delirium tremens (R.). *Camphor Monoromide*, useful in rambling delirium (Wa.). *Camphor*, in 20-gr. doses, every 2 r 3 hours, especially in low muttering delirium (R.). *Chloral*, in violent deliium of fevers (R.). *Antimony*, delirium of fevers (R.). [See FEVERS.] *Water*, the cold douche in maniacal delirium; place patient in warm bath uring application (R.). [Compare CEREBRAL CONGESTION, FEVER, MANIA.]

Delirium Tremens.

Belladonna, of proven efficacy when congestion of the brain (P.); useful for the insomnia when coma vigil, cold surface, cyanosis (B.). *Stramonium* can do all that *Bell.* can do, and is more powerful (Tr.). *Hyoscyamus*, in some forms admirable (P.). ***Opium***, cautiously, if at all (B.); as rectal inje tion, hypodermically, or with spirits. If patient strong, delirium boistero and pulse full, add *Tartar Emetic* or *Aconite* (R.). *Bromides*, in the "ho rors" preceding the delirium, ʒj every 4 to 6 hours. Are of less value in t delirium and in subsequent attacks (B., R.). Ammonium Bromide has bee used with very good results (Wa.). *Chloral*, at outset (R.); very successf but dangerous to old drunkards, or when heart disease exists (B.). If lo continued to produce sleep chloral will produce a condition of insomni *Chloroform*, inhalations to procure sleep (R.). Anæsthetics dangerous (B *Cannabis Indica*, gr. ss–j of extract, one of the least dangerous and most us ful hypnotics (P.). *Tartar Emetic*, as hypnotic (B.); combined with opium control mania and insomnia (R.). *Capsicum*, to induce sleep in early stage gr. xx–xxx in a bolus with honey, repeated after three hours (R.). In 20–30 g doses has remarkable success (P.). The tincture in ʒss-doses every thre hours of great benefit (Wa.). *Nux Vomica*, or Strychnine, should be mo freely used than it is in alcoholism, and in delirium tremens may be used hyp dermically almost to the commencement of tetanic action (Luton). *Arnic* the tincture is exceptionally serviceable in cases where there is depression (B *Coffee*, often exceedingly useful (P.). *Digitalis*, ʒss of tinct. repeated in 4 to hours (R.); a tablesp. of the infusion every 4 hours in pale subjects, anæm of brain, with effusion and œdema (B.) has cured many cases promptly wit out producing any unfavorable symptoms. Its safety and efficacy are ali questionable (Wa.). *Cimicifuga*, an excellent tonic for the nervous syste very successful (P.). *Quinine*, with a mineral acid to restore digestion, in t "horrors," and in adynamic states (B.); gr. j two or three times daily as tonic, the best to produce nervous tranquillity (Anstie). *Sumbul*, very efficie for insomnia (P.). *Zinc Phosphide*, gr. jss daily, in divided doses, for ma weeks, is used with decided benefit. *Zinc Oxide*, is of essential benefit as nerve tonic and sedative, gr. ij–viij, twice daily, gradually increased to t higher dose named (Wa.). *Lupulin*, the tinct. or oleo-resin, useful in m cases as stomachic tonic and cerebral sedative (B.). *Ammonium Carbona* when anæmia of brain and feeble heart-action (B.). *Conium*, combined w opium, useful (P.). *Alcohol*, of undoubted use where failure of stomach to propriate food (B.). *Water*, about 60° with ice to head, to reduce temperat in the hyperpyrexia (B., R.). *Treatment*, should tend to nourishment, a establishing of digestion. Concentrated liquid nourishment, with moder use of stimulants (H.). *Diet and Hygiene*. The immediate source of dan is exhaustion, hence animalized and nutritious, digestible diet in fluid fo small quantities frequently repeated; beef-tea, soups, yolk of eggs, warm m cocoa, cayenne pepper or stimulants in soups; coffee, to still nervous ex ment; hot baths and wet pack to eliminate the poison. A quiet dark r sleep a necessity, often induced by Belladonna. [Compare ALCOHOLISM.

Prescriptions.

℞. Tinct. Capsici,
Ext. Lupulini Fl., . . aa ℥j.
Mucil. Acaciæ, ... ℥ss.
Aquæ Cinnamomi, ... ℥jss.
M. Sig.—Dessertsp. as required for the wakefulness and excitement which precedes an attack.

℞. Chloralis Hydrat., ... ʒ
Ext. Conii Fl., ... ʒ
Ext. Hyoscyami Fl., . . . ʒ
Mucil. Acaciæ, ... ʒ
Aquæ Menth. Virid., . *ad* ʒ
M. Sig.—Teaspoonful in wa each meal.

Dementia and Insanity.

Moral or Mental Treatment in recent times, is confided in greatl correct management from the start, nearly all cases of insanity unatte paralysis or physical decay may be cured (Savage). This can be be istered in a well-conducted asylum or hospital for the insane, wher and the prospect of recovery will be better than in the best home.

abolition of any one plan of treatment in favor of another would be a great mistake. More than half of first attacks of insanity are recovered from under good management, which is best attained under the direction of persons trained in this specialty (H.). Recently, efforts have been made at the improvement of the insane condition by requiring them to attend school daily, with remarkably good results. *Tonics and Hypnotics*, should be used in cases requiring them. *Food*, of good quality is at the basis of treatment. *Opium*, morphine, the best form, especially for melancholics, climacteric and senile cases, which improve under its use; is hurtful in mania. *Chloral* does as much harm as good, is best suited to wildly maniacal and erotic patients. *Potassium Bromide*, is almost discarded, except for epileptic cases. *Conium*, is useful, sparingly, for noisy patients, so also is Hyoscyamine. *Colchicum*, for gouty cases, which are numerous. Cure the gout and you may cure the insanity. *Shower-bath*, suitable for cases due to self-abuse, and the wet pack in the mania of hystero-epilepsy. *Stimulants* rank high, next to quiet and absence from home. *Koumiss*, a good food in hysterical dyspepsia and anorexia, being easily digested and preventing waste (*Dr. Savage, Bethlehem Asylum*). [Compare DELIRIUM, HYPOCHONDRIASIS, MANIA, MELANCHOLIA.]

Dementia Paralytica.

Physostigma, has seemed to retard the progress of the disease in some few cases (B.). *Paraldehyde*, in one or two drachm doses as a calmative and hypnotic is as efficient as chloral and without danger (B.). *Tonics*, may be used, though treatment is only palliative. Lacto-phosphate of Calcium, Cod-liver Oil, etc. No remedies have hitherto been of any avail (B.).

Dengue.

Emetics and *Purgatives* are indicated at the outset, also free diaphoresis. Treatment is entirely symptomatic. *Quinine*, in five-grain doses every four or five hours for the fever (Da Costa); should be given more for its tonic than for its antiperiodic effects (Fayrer). *Opium*, in some form for the pains and nocturnal restlessness. *Salicylic Acid* or salicylates for the pains in joints and muscles. *Carbolic Acid*, as lotion, a 5 per cent. solution, for the itching, or camphorated oil. *Belladonna* confers great relief in this disease, ♏x–xv of the tincture may be given every hour for two or three doses (Fayrer). *Aconite*, with salines and nitric ether, during the pyrexia, which may go so high that cold sponging or the cold bath may be required. *Bitter Tonics*, as gentian and calumba, with quinine and a mineral acid or strychnine during convalescence.

Prescriptions.

℞. Tinct. Colchici Sem., . . . ʒij.
Spt. Ætheris Nitrosi, . . . ʒiv.
Potassii Nitratis, ... gr. xl.
Aquæ, ... *ad* ℥vj.

M. Sig.—Tablespoonful well diluted every hour or two until profuse diaphoresis occurs. For relief of the violent pains.

℞. Tinct. Aconiti, ... ♏xvj.
Morph. Acetatis, ... gr. ij.
Spt. Ætheris Nitrosi, . . . ʒiv.
Liq. Ammon. Acetat., . . ℥iij.
Aquæ Camphoræ, . . *ad* ℥iv.

M. Sig.—Teasp. to dessertsp. according to age, every hour for three hours, then every two hours.

Dentition.

Belladonna, in convulsions of dentition rarely fails to relieve (P.). *Hyoscyamus*, to alleviate pain and subdue irritation; better than opium for children (P.). *Chamomilla*, ♏j of the tincture every ¼ hour, an excellent sedative for children (A. A. Smith). *Potassium Bromide*, for irritability and convulsions in teething (R.). *Dulcamara*, the infusion, in diarrhœa of dentition quickly checks symptoms (P.). *Calumba*, excellent for the accompanying vomiting and diarrhœa (P.). *Hypophosphites*, of lime or sodium, as a general tonic, are highly recommended (R.). *Rhubarb*, with soda, internally for the aphthæ, with perfect cleanliness of the mouth and a wash of Borax or Potassium Chlorate in glycerin, gr. x ad ℥j (E. Smith). *Castor Oil*, for the diarrhœa of dentition to clear out the bowels, then a mixture of Chalk and Catechu, or Oxide of Zinc, gr. j to the dose, with gtt. j of Laudanum if required to reduce peristalsis (E. Smith). *Lancing the Gums* to relieve tension when gum is actually swollen: should not be indulged in indiscriminately.

Prescriptions.

℞. Potassii Bromidi, ... ʒj.
Olei Anisi, ... ♏ij.
Mucil. Acaciæ,
Aq. Menth. Pip., . . . aa ℥j.
M. Sig.—Teasp. every half-hour until relieved. (B.)

℞. Sodii Bromidi,
Sodii Bicarbonat.,
Chloralis, ... aa gr. xx.
Aq. Menth. Viridis, . . . ℥jss.
Syr. Zingiberis, ... ℥ss.
M. Sig.—Half-teasp. to dessertsp. according to age.

Diabetes Insipidus.

Opium, large doses necessary, gr. vj–xij a day (B.); combined with gallic acid the most generally useful remedy (W.). *Ergot* has cured many cases, the fluid extract in doses of ʒss–j thrice daily (Da Costa); one of the most efficient remedies (B.); is the most useful remedy (R.). *Iron* and *Strychnine* are very useful for tonic effects (Da C.). *Valerian* restrains the flow of urine but does not cure (B.). *Muscarine* has been used with apparent success (R.). *Potassium Iodide* is curative in many cases of syphilitic origin (B.). *Alum* has produced good results (B.). *Jaborandi*, used successfully to reduce the quantity of urine (B.). *Valerian*, large, increasing doses (R.). *Krameria* lessens quantity of urine (P.). *Diet*, a dry diet beneficial (B.).

Prescriptions.

℞. Ext. Ergotæ Fl., ... ℥iij.
Sig.—Half-teasp. thrice daily, gradually increased to a dessertspoonful.

℞. Acidi Gallici, ... ʒiij.
Div. in chartulas xij.
Sig.—One thrice daily.

Diabetes Mellitus.

Phosphoric Acid, largely diluted, assuages the inordinate thirst. In one case it seemed to act as a curative agent (Wa.). *Arsenic*, when from faulty assimilation, in diabetes of hepatic origin, and in thin subjects (B.): the *Bromide of Arsenic* is credited with several cures. The *Lithiated Arsenical Water*, used in 70 cases with cure of 96 per cent. (Martineau). See *infra* for formulæ. *Morphine*, is very efficient in reducing sugar when used by mouth, but is of no value when employed sub-cutaneously, even in the same case (Bruce). *Opium*, in large doses (gr. vj–xij a day), ameliorative. *Codeine*, is especially serviceable (B.). Abates thirst and controls appetite (R.). Its value much disputed (P.); is of great value in many cases (W.). Codeine gr. ¼–½ one of the best remedies (Da Costa). *Sodium Salicylate* has cured when all other drugs have failed (R.); gr. x–xv in compound spirit of lavender and water, thrice daily, is my favorite remedy (Da Costa). *Ergot* is one of the useful drugs (Da C.); decreases the quantity of sugar and the volume of urine. *Potassium Bromide*, gr. xx ter die, cured two cases in six weeks (Begbie, R.); useless (Da C.). *Krameria* lessens quantity of urine (P.). *Phosphates*, to avert failure of nutrition (B.). *Glycerin* has produced good results (B.). Used in place of sugar (W.). *Aurum Chloride* is one of the promising remedies (B.). *Iodoform*, in doses of gr. j–ij, rapidly reduced the sugar and caused its disappearance in 4 or 5 days, in five cases, without any change in diet being made (Moleschott); the

testimony for its value in this disease is quite considerable (B.).
be advantageously substituted for Iodoform in all the diseases to
latter is applicable (B.). *Oxygen*, as oxygenated water, instead of
l, very successfully used (Le Blond). *Uranium Nitrate*, gr. i–iij,
has caused decided improvement in several cases (Hughes). *Alka-*
d on theoretical grounds, but have not produced much benefit. One
ently cured by the diligent use of Ammonium Carbonate (B.); are
(Da Costa). Alkaline mineral waters for diabetes of hepatic origin
se subjects, are extremely useful (B.). *Salines*, a warm solution of
and chloride of sodium, by intravenous injection, in diabetic coma,
stonishing results in one case (B.). *Aloin*, for the accompanying
n (Da C.). *Nux Vomica*, or Strychnine, is generally beneficial.
actophosphate benefits the thin, nervous type of diabetes remarkably
nent. All saccharine and farinaceous foods forbidden. Use fats,
d, and gluten or almond bread. *Milk-cure*, buttermilk best, to be
od until cessation of symptoms. *Alkaline Waters*, when of hepatic
in obese subjects. Tepid drinks in the intense thirst (B.). *Diet and*
e of the utmost importance. Avoid amylaceous food, and everything
sugar, especially ordinary bread. Use fresh, nutritious animal food,
l of bran or almonds. Warm baths, warm climate, flannel under-
Milk-cure, by skimmed milk, very successful, 6 to 10 pints daily.
od for six weeks, then animal food. *Caution*,—the urine of patients
cylic acid gives the reaction of sugar with Trommer's test (R.).

Prescriptions.

tassii Arsenitis, . . ʒjss.
Opii Deodorat., . . ʒv.
Zingiberis, ... ℥j.
Cinnamomi, . . *ad* ℥iv.
—Teasp. thrice daily.

Carbonat., ... gr. xl.
rseniat., ... gr. j.
entianæ, ... gr. xx.
. xxv. Sig.—One night and
l sugar disappears from urine.
More convenient than Marti-
l.

℞. Codeinæ, ... gr. viij.
Syrupi, et Aquæ, ... ℥ij.
M. Sig.—Half teasp. thrice daily, gradually increased up to two teaspoonfuls.
(*Pavy.*)

℞. Sodii Arseniat., ... gr. iij.
Aquæ, ... Oj.
A tablesp. of this with Lithii Carbonat. gr. iij. into a quart syphon filled with carbonated water, which to be taken freely, as daily beverage. (*Martineau.*)

Diarrhœa.

when from chill, high fever, cutting abdominal pains (P.). *Mercury*,
r infantile diarrhœa (ileo-colitis), gr. $\frac{1}{20}$ to $\frac{1}{12}$ every half-hour (B.).
ride, gr. j in ℥x aquæ, a teasp. frequently in acute or chronic diarrhœa
r children with slimy, bloody stools, pain and straining. Gr. $1/6$ of
r hourly, or gr. $\frac{1}{100}$ of corrosive sublimate every two or three hours
of the bichloride to the quart of water, of this a teasp. every hour
diarrhœa (A. A. Smith). *Camphor*, in summer diarrhœa and the
diarrhœa of Asiatic Cholera (B.).; when from effluvia of drains or
cold (R.); useful in many forms (P.). *Ipecacuanha*, in summer
nd dysentery of children with greenish stools (B.); hourly drop-
e wine especially if vomiting (R.); when from nervous irritation,
oung children (P.). *Dulcamara*, in diarrhœa of children from damp,
ntition (P.). *Pulsatilla*, dyspeptic diarrhœa, mucous discharges,
(P.). *Quinine*, in periodic diarrhœa, with dysentery and jaundice
trum Album, in the vomiting and purging of summer diarrhœa
phyllum, in chronic, with high-colored motions and cutting pains,
rning diarrhœa (R.). Gr. $\frac{1}{20}$ to $\frac{1}{10}$, with occasional doses of aconite,
g and diarrhœa of gastro-enteritis and prolapse of rectum (P.).

[illegible] an infusion in summer diarrhœa of adults, or in that of dentition (R.). [illegible] in diarrhœa of children, especially from worms (P.). *Arsenic*, in evacuation of undigested food (B.); gtt. j of liq. arsen. before meals when diarrhœa excited by food; also in chronic and membranous forms (R.). *Nux Vomica*, a very useful adjunct to other remedies (B.); often of much service in epidemic diarrhœa (P.). *Sulphuric Acid*, in summer and choleraic diarrhœa. Small doses in chronic form and in the straining diarrhœa of children (R.). Iron, sol. of pernitrate in army diarrhœa (B.). *Lime Carbonate*, in later stages, as chalk mixture in diarrhœa of typhoid or phthisis (R.). *Zinc Salts*, very efficient in summer diarrhœa of children (B.). *Rhubarb*, in early stages to get rid of irritant, afterward to check the diarrhœa (R.); when torrefied it has no purgative power, but its astringency is retained. *Rumex*, in morning diarrhœa (R.). *Arnica* checks exhausting diarrhœa with great certainty (P.). *Silver Nitrate*, in diarrhœa of children. White, pasty and offensive stools. Combined with opium the most effective remedy for that of phthisis or typhoid (B.). *Mineral Acids*, in painless, watery stools, light color and alkaline (B.). *Alkalies*, mistura cretæ in sour-smelling stools (B.). Sodium, potassium or magnesium bicarbonates when acid canal (R.). *Lead Acetate* is excellent in all forms (B.); with opium as an injection (R.). *Bismuth* is effective, requires large doses. Gr. xxx–lx every three or four hours; is especially indicated when desire for stool is felt immediately after eating (B.). Gr. j hourly with milk, sometimes with gr. ¼ gray powder, in various forms of infantile diarrhœa (R.). *Opium*, commonly used, but is best in watery evacuations, combined with mineral acids or acetate of lead (B.). An injection with starch in severe cases (R.). *Calumba*, when not inflammatory (B.). *Coto Bark*, the fluid ext. or Cotoin is one of the new remedies for atonic diarrhœa. *Purgatives, Saline*, a teasp. of Epsom salts (magnes. sulph.) in a wineglass of water every three hours when intestinal inflam'n (B.). *Copper Sulphate*, the most effective astringent in chronic diarrhœa and that of phthisis (B.). *Ergot*, in persistent chronic diarrhœa (B.). *Iodine*, one or two drops of tinct. in diarrhœa from atony of mucous membrane (B.). *Tannic Acid*, very useful in profuse and chronic diarrhœa. Stillé advises tannic acid and milk diet for chronic diarrhœa and dysentery (B.). *Thymol*, gr. xx to ℥ij in 24 hours in divided doses for adults, is a very efficient internal antiseptic in all cases of diarrhœa, especially that of phthisis, teething children, chronic diarrhœa, etc., (Martini). *Carbolic Acid*, very useful in fermentative diarrhœas, especially when combined with bismuth in cholera nostras and cholera infantum (B.). *Diet.* Cool or cold, light, bland food. Gruel, rice, arrow-root, whey, barley-water, in recent cases. In chronic cases the most digestible but nutritious food, as fresh fish, game, raw eggs, rice, mucilaginous drinks. Milk-and-lime-water or soda-water very useful. Also raw meat pulp. Avoid beef, pork, veal, and much starchy food. [Compare DYSENTERY, CHOLERA.]

Prescriptions.

℞. Bismuthi Subnit., ... ℨj–ij.
Pepsini Saccharat., . . . ℨss.
Zinci Oxidi, ... gr. vj–xij.
Trit. et div. in chartulas xij.

Sig.—One every four hours in summer diarrhœa of children.

℞. Sodii Bromidi, ... ℨss.
Mucil. Acaciæ,
Aquæ Puræ, . . āā q. s. ad ℥ij.
M. Sig.—Teasp. every three hours in the diarrhœa of dentition, for child less than a year old. (*A. A. Smith.*)

℞. Tinct. Opii Deod., ... ℨj.
Tinct. Calumbæ, . . . *ad* ℥ij.
M. Sig.—Teasp. in a winegl. of water before meals.

℞. Cupri Sulphat., ... gr. j.
Morph. Sulphat., ... gr. ij.
Quininæ Sulph., ... gr. xxi[illegible]iv.
Fiant pil. no. xij. Sig.—One pill thrice daily.

℞. Zinci Oxidi, ... gr. xv[illegible]j.
Sodii Bicarb., ... gr. vi[illegible]j.
M. et div. in chartulas iv.
Sig.—One every 6 hours.

℞. Zinci Sulphatis,
Pulv. Opii,
Pulv. Ipecac., ... āā gr. xij.
M. Fiant pil. no. xij. Sig.—One 3 or 4 times daily in chronic diarrhœa of adults.

℞. Tinct. Opii Camph.,
Tinct. Catechu, ... āā ʒ iij.
Mist. Cretæ, ... ʒ x.
M. Sig.—A teasp. four or five times daily for children.

℞. Spt. Ætheris Co.,
Tinct. Opii Camph , ... āā ℥ j.
Syr. Simplicis, ... ℥ ij.
M. Sig.—Dessertsp. after each movement.

℞. Plumbi Acetat., ... gr. xx.
Pulv. Opii, ... gr. x.
Fiat massa, et div. in pil. x.
Sig.—One twice daily.

℞. Ac. Nitrici Diluti, ... ʒ ij.
Tinct. Camphoræ,
Tinct. Opii, ... āā ʒ j.
Syr. Zingiberis, ... ℥ iv.
Aq. Menthæ Pip., . . . *ad* ℥ vj.
M. Sig.—Tablesp. doses to be used after a cathartic. (*Hope's Mixture modified by Thompson.*)

℞. Tinct. Opii Camph.,
Syr. Rhei Aromat., . . āā ℥ ss.
Aquæ Calcis, ... *ad* ℥ ij.
M. Sig.—A teasp. for children.

Diphtheria.

Belladonna, an excellent remedy; if given early will abort the exudation and later is useful to sustain the heart (B.); especially when throat and tonsils acutely inflamed and much swollen (R.). *Corrosive Sublimate*, gr. $\frac{1}{20}$–$\frac{1}{8}$ every 2 or 3 hours, has given me most success, with Thymol or Boric Acid gargle; and Potassium Chlorate, Iron and Quinine together, where the membrane is not spreading (Da Costa): gr. jss in ℥iv of glycerin and water, of which ʒj every ½ hour for 6 doses, then every hour night and day, to a child of 4 years. (Grant-Bey): locally very efficient, gr. ij to Oj of water, applied on a cotton swab, which should be burned after one using; this hourly night and day (Oatman). *Hydrarg. Cyanide*, in solution of gr. $\frac{1}{10}$ to the ℥, of which a teasp. every ½ hour day and night to older children and adults, with a gargle of the same solution (Sellden); gr. $\frac{1}{96}$–$\frac{1}{48}$, according to age, every hour or two (Erichsen). *Calomel* is next in importance to quinine and iron, has proved successful in cases where other means failed, gr. ⅛–¼ every 3 hours, with a little Dover's powder (Da Costa), checks plastic exudation; its use limited to children of good constitution, with sthenic symptoms. Gr. ½ to j every 2 or 3 hours with or without Dover's powder (gr. j) or ipecac. (gr. j) till bowels become relaxed, with greenish stools (Wa.). Gr. v repeated boldly every hour to ʒiv, for a child of 3 years, until the stools appear like polyps in water-troughs, gelatinous, and of a bright, dark-green hue. Then a dose of castor oil if salivation is feared (Reiter's Monograph). The safest and most efficient germicide with which we can saturate the system; nothing like it in diphtheria,—gr. ⅙–⅓ every hour, even gr. j every 2 hours, has no bad effects, no salivation (Fowler). *Calcium Chlorate*, solution locally as lotion for the mouth. Considered almost specific by some; its chief utility is in removing fetor; may influence germs (R., B.). *Potassium Chlorate*, grain-doses every ½ hour (A. A. Smith); is more largely used than any remedy, both internally and locally (B.); in full doses with Liq. Cinchonæ, seems to be of service in some cases (Wa.). *Pilocarpine*, used in 80 cases without a single death; produces free salivary discharge but is depressant to the heart (Guttmann); many opinions for and against it. Is decidedly injurious in adynamic cases (B.). *Quinine* in tonic doses recommended from my experience (Da C.); when headache with high temperature, vomiting, and symptoms of septic poisoning, then in full doses (Wa.); is most useful after serious symptoms have abated, then with Iron and a mineral acid (Mackenzie). *Carbolic Acid*, in spray, locally to the fauces, to remove fetor and destroy disease-germs (B.). As caustic, the concentrated acid in glycerin on a mop or brush (W.). With iodine to prevent systemic infection (B.). *Arsenic*, in medicinal doses, when sloughing of throat, or malignant diph. (R.). *Salicylic Acid*, locally and internally (gr. x), has produced good results (B.). *Sulphurous Acid Gas,* [illegible] recommended by a royal commission in Victoria, as a means of arresting th[illegible] disease. Crude sulphur burned in the room, all apertures being closed (R.)[illegible] *Sulphurous Acid,* in full and frequent doses, causes rapid disappearance of th[illegible]e exudation, and improvement in the general condition. ʒj every ½ hour to a[illegible]n adult in severe cases, in ordinary ones every 2 hours. An 8-ounce mixtur[illegible]e should have 2 or 3 ounces of syrup, and should be given in milk to very youn[illegible]g children (Snow). *Sodium Sulphite,* ʒj–℥j aquæ, locally, an easily manage[illegible]d application (B.); an injection for nares in nasal diphtheria (Da C.). See fo[illegible]rmula below. *Sodium Hyposulphite,* in solution of ʒj to ℥ij of water, of whi[illegible]h hourly doses of ʒj, to be retained in throat several minutes before being swa[illegible]llowed, an excellent local and constitutional remedy, which may also be us[illegible]d by a brush or spray to the throat, and by a syringe to the nares (Fruitnigh[illegible]). *Sodium Benzoate,* is highly efficient, 75 to 100 grains daily, according to a[illegible]e, also used locally (B.). *Sodium Sulpho-Carbolate,* has been found useful in li[illegible]u of carbolic acid (Wa.). *Lime-Water,* dissolves false membrane. The vap[illegible]rs of slacking lime inhaled; or better, lime-water by atomizer to back of fau[illegible]es while patient respires deeply (W.). *Ferric Chloride,* as solution painted on or applied by spray to the throat (R.). Of no advantage locally, internally m[illegible]ay serve by supporting the organism (B.); the tinct. of the chloride, gtt. xx ev[illegible]ry 2 or 3 hours; or better the perchloride, gr. ½ to j every 2 hours in syrup [illegible]nd water, is easier to take and doesn't hurt the throat (Da C.). *Strychnine,* hy[illegible]podermically, for the subsequent paralysis (R.). *Tartaric Acid,* locally, conv[illegible]rts membrane into a gelatinous mass, easily expelled (Vidal). *Thymol,* gr. xx [illegible] to the ℥ of water, with a little glycerin, is the best gargle; may need weaken[illegible]ng (Da C.). *Boracic Acid* in solution, is next best as gargle (Da C.). *Alum* [illegible]nd *Sulphur,* equal parts, powdered and blown into the throat at moment of d[illegible]ep inspiration, as often as asphyxia is threatened, has been found efficient (Jon[illegible]s). *Trypsin,* is a good solvent of the false membrane; of all remedies used [illegible]ith the spray-atomizer, it has given me the largest percentage of recoveries (Fr[illegible]uitnight). *Chinolin,* a 5 per cent. solution painted over the affected parts [illegible]ith great advantage (Seifert); the tartrate in 10-grain doses internally (B.). [illegible]ro*mine,* the vapor by inhalation, is useful (Wa.); a $\frac{1}{100}$ solution in distilled wa[illegible]er, of which gtt. j–iij every ½ hour in a teasp. of sweetened water, using a g[illegible]ass spoon; and a saucer full of bromine water in the room, renewed every 12 ho[illegible]rs, has seemed to be extremely efficient in a number of cases. *Iodine,* as inh[illegible]lation frequently (see formula below): with use the solution may be increase[illegible] to ℥ss at each inhalation (R.). *Potassium Permanganate,* gr. ½ in distilled wa[illegible]ter, internally, and also used locally, is of undoubted benefit (B.): is credited [illegible]ith brilliant results even in malignant cases. *Sanguinaria,* the best emetic, an[illegible] by many is considered specific in this disease (P.). See formula below. *L[illegible]ctic Acid,* ʒiijss to ℥x of distilled water, as gargle, on mop or by spray, to diss[illegible]lve membrane (B.). *Tannin,* a 5 per cent. solution, as spray (R.). *Alcoh[illegible]l,* is probably as good a local antiseptic as any: diluted with equal parts of wa[illegible]ter, by hand-ball atomizer every ½ hour. Is the prince of antiseptics, and the [illegible]ost perfect and reliable medicine in diphtheria of which we have any knowl[illegible]dge (Hills). *Stimulation,* freely, the essential part of the treatment; infants are [illegible] not injuriously affected by even teasp. doses of whiskey every ½ hour. Stimu[illegible]late for effect and not by dose; those cases do best which are stimulated freely [illegible] and early (Da C.). There is more danger from giving too little alcohol than [illegible]rom too much. A three-year old child can comfortably take from ℥j–℥v of Cog[illegible]nac, or gr. xv of Musk or Camphor, or gr. xv–ʒj of Ammonium Carbonate i[illegible] 24 hours. In the septic form especially, the intoxicating action of alcohol is [illegible] out of the question. Young children with general sepsis began to improve [illegible]hen their ℥iv of brandy were increased to ℥xvj daily (Jacobi). *Turpentine,* [illegible]j of the oil thrice daily, with ♏iv of Spiritus Ætheris as a corrective, at the [illegible]ame time using ice-bags, and a gargle of Potas. Chlorate solution, and internall[illegible] ½-ounce doses every 2 hours of a 2 per cent. solution of Sodium Salic[illegible]late (Roesse, Baruch). *Tar and Turpentine* vapor, made by burning in the [illegible]oom coal-tar 7 parts to Ol. Terebinth. 3 (Delthil). *Chlorine-Water,* tablesp. doses internally and as gargle, highly efficient. *Cubebs*, are very efficient in the catarrhal forms of diphtheria (B. Robinson): the freshly-ground berries in large doses in early stages of the disease, a very successful treatment (Trideau). *Water.* Ice in the mouth, and the wet pack to the throat are extremely serviceable (B.). Ice sucked, especially at commencement, and continued until the disease declines (R.). Ice packed in bladders or thin india-rubber bags, to the throat (W.). *Aliment.* Good foods, wines or brandy necessary from the start to maintain the patient's strength (R.). A teasp. of glycerin every 3 or 4 hours, plenty of good soup and wine, nutritive enemata, are necessary to sustain system. Moist inhalations. Temp. of room 68° Fah. Removal from the house wherein attacked is advisable. Ice very grateful to the patient. *Tracheotomy*, only in extremis (R.): is not successful in diphtheria, though very much so in membranous croup (Da C.). *Intubation of the Larynx*, as an alternative to tracheotomy, is enthusiastically advocated by many operators.

Prescriptions.

℞. Tinct. Ferri Chloridi, . . . ℥j.
Syrupi Tolutani. . . . . ℥ijss.
Liq. Potassii Citratis, . . . ℥ijss.
M. Sig.—Teasp. to dessertsp. according to age, every 3 hours, ʒj = ♏x of the tincture. (*Anderson.*)

℞. Hydrarg. Chlor. Corros., gr. j, may be added to the above formula, which should then be given in teasp. doses.

℞. Potassii Chloratis, ... gr. xl.
Syrupi Simplicis, calid., . . ℥ijss.
Solve, et adde—
Ac. Sulphur. Aromat.,
Tinct. Ferri Chloridi, . aā ʒj.
M. Sig.—Teasp. doses for adults, every 2 to 4 hours, reduced as improvement advances, but kept up throughout disease.

℞. Hydrarg. Bichlor., ... gr. jss.
Glycerini, ... ℥j.
Aquæ Destillat., ... ℥iij.
M. Sig.—A teasp. every ½ hour for 6 doses, then every hour night and day to a child of 4 years. Also—

℞. Ung. Iodoformi, 1 in 10, rubbed in over swollen glands every 3 hours. (*Grant-Bey.*)

℞. Pulv. Potass. Chlorat., . . ʒj.
Ac. Hydrochlor., ... ʒij.
Mix in a strong pint bottle, cork until effervescence ceases. Add ℥xvj of Water, ℥j at a time, shaking at each time. Cork tightly. Paint the bottle.

Sig.—Chlorine-water. A tablesp. or two to be taken frequently, according to age.

℞. Acidi Lactici,
vel Tartarici, ... ʒijss.
Glycerini, ... ℥iv.
Aq. Menth. Pip., ... ʒvij.
M. Sig.—Locally to patches every 3 hours.

℞. Thymol, ... ʒj.
Glycerini, ... ℥j.
Aquæ, ... ℥iij.
M. Sig.—Gargle. (*Da Costa.*)

℞. Sodii Sulphit., ... ʒiij.
Glycerini, ... ℥ij.
Aquæ, ... q. s. *ad* ℥iv.
M. Sig.—Nasal injection. (*Da Costa.*)

℞. Tinct. Ferri Chloridi, . . . ℥j.
Potassii Chloratis, ... ℥ss.
Misce et adde—
Aquæ, ... q. s. *ad* ℥viij.
Sig.—Gargle. (*Jacobi.*)

For the chemistry of this combination see under CHLORUM, *ante*, page 173. Glycerin should not be added, as in Dr. Jacobi's original ℞, which makes an explosive mixture.

℞. Bromi, ... gr. j.
Potass. Iodidi, ... ℥j.
Aquæ, ... ℥j.
M. Sig.—Inhale from a cone, as solvent of membrane.

℞. Acidi Carbolici, ... ♏xv.
Aquæ Calcis, ... ℥vj.
M. Sig.—Spray. To be used with a hand-ball atomizer several times daily, for 5 minutes each time.

℞. Pilocarpinæ Muriatis, . . . gr. ⅓–⅔.
Pepsini, ... gr. x–xx.
Acidi Hydrochlor., ... gtt. ij.
Aquæ Destill., ... ℥ viij.
M. Sig.—Teasp. every hour for a child.

℞. Pulv. Sanguinariæ, ... gr. xx.
Pulv. Ipecac., ... gr. v.
Syrupi Ipecac., ... ℥ ij.
M. Sig.—Teasp. every ¼ hour until vomiting; afterwards, ½ teasp. every hour. (*Phillips.*)

℞. Liq. Ferri Subsulph., ... ʒ ij.
Glycerini, ... q. s. *ad* ℥ ij.
M. Sig.—Apply with brush to throat 2 or 3 times daily.

℞. Ac. Tartarici, ... ℥ j.
Glycerini, ... ℥ jss.
Aquæ Menth. Pip., . . . *ad* ℥ iv.
M. Sig.—Gargle frequently. (*Vic[illegible]al.*)

℞. Ac. Salicylici,
Sodii Boratis, ... āā ʒ ij.
Ac. Carbolici, ... ʒ j.
Aquæ, ... ℥ iv.
M. Sig.—Use as gargle or wash.

℞. Iodi, ... gr. iv.
Potassii Iodidi, ... gr. iv.
Alcoholis, ... ʒ iv.
Aquæ, ... *ad* ℥ iv.
M. Sig.—Teasp. on boiling water as inhalation. (*Waring-Curran.*)

Dropsy.

Arsenic, in dropsy from feebleness of heart, and in old age (B.); swelled feet from debility (R.). *Digitalis*, one of the best remedies, esp. in renal dropsy from acute desquamative nephritis. The infusion in doses of ℥ss (B.). The fresh infusion best for heart disease, esp. when tricuspid regurgitation (R.). Induces striking effects in cardiac dropsy, when scanty urine and venous engorgement. Has high rank as a diuretic (P.). *Apocynum Cannabinum*, actively diuretic (P.). *Caffeine*, the citrate in 5-grain doses is eminently diuretic. *Hydrargyrum*, a classical pill in dropsy with dyspnœa from cardiac disease is the combination of Dr. Baillie, containing Mercury, Digitalis and Squill (see formula below). Calomel in doses of gr. ss–ij is eminently diuretic, especially in cardiac dropsy: but by many it is thought to act by aiding the action of other diuretics. *Bryonia*, as a drastic purgative and diuretic, care necessary as it depresses the heart. The infusion best (P.). *Hellebore*, the tinct. in doses of gtt. v–xv, every 2 or 3 hours, very successful in dropsical effusions, especially in general anasarca after scarlatina (P.). *Senega*, as a diuretic when dependent on kidney disease; has been praised (P.). *Chimaphila*, is useful as a diuretic in renal dropsy esp. when with loss of appetite and debility (P.); may be substituted for Scoparius (B.). *Juniper*, largely used as a diuretic in cardiac and renal dropsy (B.); esteemed in post-scarlatinal dropsy (R.). *Iron*, purgative chalybeate waters (B.); the Mistura Ferri et Ammonii Acetatis (Basham's Mixture), in anæmic dropsy (Da C.). *Pilocarpus*, very valuable in renal dropsy when secretion of urine is much reduced or suppressed (B.). *Jalap*, the compound jalap powder, gr. xv–xx, with ʒiij of potas. bitart. and a little ginger, early in the morning, 2 or 3 times a week; no hydragogue superior, in dropsy from Bright's disease (Wa.). *Turpentine*, controls dropsy with albuminous urine, from non-desq. renal disease. Gtt. ss every 2 to 4 hours (P.). *Colchicum*, as a hydragogue in hepatic and cardiac dropsy when patient is vigorous, also in post-scarlatinal dropsy (B.). *Scoparius*, esteemed by English physicians (B.); is most useful in cardiac dropsy. Cullen found it the most certain diuretic. Diluents should be freely used with it (P.). *Squill*, in cardiac dropsy; cautiously if from kidney-disease. If anæmic add iron (B., R.). *Taraxacum*, is occasionally used as a diuretic, with limited utility (B.). *Copaiba*, gives good results, especially in *Ascites*, which see for formula (B.). *Potassium Bitartrate and Acetate*, are very certain as diuretics when largely diluted with water. "Cream-of-tartar lemonade." Indicated in desquamative nephritis, and general dropsy from valvular disease of the heart (B., R.). *Elaterium*, of unquestionable value as derivative in many passive forms of dropsy; though many fear it (P.). *Acupuncture*, or better still, incisions from ¾ to an inch long, one over each exter-

l malleolus generally sufficient. A hot sponge, moist with weak carbolic
id solution kept to incisions (R.). *Aliment*, dry diet is of advantage in dropsy
serous cavities (B.). *Diet.* Should be light in acute dropsies; in chronic,
urishing. Water not injurious but beneficial as drink. Warm baths, Hol-
ıds gin in small doses, tapping, for alleviation in incurable cases. A moder-
ly warm, dry atmosphere. Skim-milk diet said to be of very great value in
ıal dropsy. [Compare ASCITES, HYDROCELE, HYDROCEPHALUS, HYDRO-
ORAX, etc.]

Prescriptions.

Vini Colchici Seminis, . . ℥ss.
Liq. Ammonii Acetat., . . ℥ijss.
Infusi Petroselini, ... ʒv.
I. Sig.—Teasp. every 4 hours. An
ellent diuretic, esp. adapted to dropsy
carlatina. (B.)

Elaterii, ... gr. j.
Spt. Etheris Nitrosi, . . . ℥ij.
Tinct. Scillæ,
Tinct. Colchici, ... āā ℥ss.
Syr. Simplicis, ... ʒj.
I. Sig.—Teasp. 3 or 4 times daily, in
atic and cardiac dropsy in sthenic sub-
s.

Pulv. Digitalis, ... gr. j–jss.
Pulv. Scillæ, ... gr. j.
Hydrarg. c. cretâ *vel*
Pil. Hydrargyri, ... gr. j–iij.
Ft. pil. no. j. Sig.—One thrice daily.

Pulv. Scillæ,
Pulv. Digitalis, ... āā ʒss.
Potassii Nitratis, ... ʒj.
M. Fiat massa, et div. in pil. xxx.
Sig.—One pill thrice daily.

℞. Aceti Scillæ, ... ℥ss.
Infusi Digitalis, ... *ad* ℥iv.
M. Sig.—A tablesp. 2 or 3 times daily.

℞. Potassii Acetatis, ... ʒvss.
Spt. Etheris Nitrosi, . . . ℥ij.
Aquæ, ... q. s. *ad* ℥viij.
M. Sig.—Tablesp. every 3 or 4 hours.

℞. Potassii Bitartrat., ... ℥j.
Ext. Taraxaci, ... ℥ss.
Decocti Taraxaci, ... ℥viij.
M. Sig.—½ winegl. twice or thrice daily.

℞. Tinct. Digitalis, ... ʒj–ij.
Tinct. Scillæ, ... ʒij.
Spt. Juniperi Comp., . . . ʒiv–vj.
Potassii Acetatis, ... ℥iv.
Vini Albi, ... q. s. *ad* ℥vj.
M. Sig.—A tablesp. 3 or 4 times daily.

℞. Mist. Ferri et Ammonii Acetatis (U. S. P.), ... ℥vj.
Sig.—Dessertsp. or two three or four times daily. (*Basham's Mixt.*)

Duodenal Catarrh.

Sodium Phosphate, ʒj four times daily, extremely efficient in catarrhal con-
tions of the duodenum and bile-ducts, resulting in jaundice, hepatic colic,
c. (B.). *Vichy Water*, in similar conditions, probably owes its efficacy to
e phosphate of sodium contained in it (B.). *Potassium Bichromate*, in doses
gr. $\frac{1}{10}$–$\frac{1}{5}$, two or three times a day, is an excellent remedy in so-called duo-
nal dyspepsia, manifested by a bitter taste, coated tongue, pale stools, vom-
ng of glairy fluid and dull pain in right hypochondrium. *Arsenic*, has been
ed with success in jaundice from catarrh of bile-ducts after duodenal
tarrh (B.). *Podophyllum*, in catarrhal and malarial duodenitis. *Nitro-
uriatic Acid*, in mucous duodenitis; also as bath to right hypochondrium
iij-gall. j), temp. of bath 96° (B.). *Aliment.* No starches or fats; milk, eggs,
sters, beef-broth, broiled or raw beefsteak, whitefish (B.). Diet should be
clusively animal, in order to let the stomach deal with it. [Compare JAUN-
ICE, BILIOUSNESS.]

Dysentery.

Aconite, fever and cutting pains (P.). *Mercury*, in minute doses for the ileo-
olitis of children. Gr. $\frac{1}{20}$ to $\frac{1}{12}$ of calomel or hydrargyrum cum creta every
alf hour (B.). Gr. $\frac{1}{100}$ of the bichloride hourly or every 2 hours, in acute or

chronic dysentery if stools are slimy or bloody (R.). *Ipecacuanha*, is *par excellence* the remedy for acute dysentery of the ordinary type; large doses. Gr. xxv–xxx (P.); gr. xv in milk (B.). Valuable in acute or epidemic, also in summer dysentery of chilldren, with greenish stools, mucus and blood, gr. ii–v every 2 hours in milk (B.). Dysenteric diarrhœa of children, especially with vomiting, will often yield to hourly drop doses of ipecacuanha wine (R.). *Hamamelis*, when the discharges contain much blood (R.). *Nux Vomica*, in epidemic dysentery (P.); prune-juice stools, much gas, vital depression (B.). *Arsenic*, Fowler's solution gtt. ij with gtt. v of opium often benefits (B.). *Quinine*, when periodic (B.); in malarial subjects is as successful as ipecacuanha in dysentery of the ordinary type (P.). *Gamboge*, gr. ¾ in 24 hours, exceedingly valuable, especially in young persons (P.). *Castor Oil*, as a mild cathartic, is very valuable in appropriate cases (Wa.); gtt. v every hour, in water with sugar and gum, is excellent for dysenteric diarrhœa of children (A. A. Smith). *Arnica*, when vital powers are greatly depressed, is highly extolled (Wa.). *Saline Purgatives*, Epsom salts the best treatment for acute dysentery, especially when fever, pain, tenesmus and stools of mucus and blood (B.). *Silver Nitrate*, in pill, gr. ¼–j, with opium, in acute dysentery after subsidence of acute symptoms. Also as enema beyond the sigmoid flexure (gr. x–xx ad Oj aquæ). Also as escharotic through speculum to ulcer of rectum (B.). *Opium*, as enema, with starch and milk, after canal is emptied by salines. Indispensable in chronic dysentery (B.). For the purging (R.). A remedy of great value, and applicable to every stage and every form of the disease, allaying pain and vascular excitement, moderating peristalsis, promoting the cutaneous secretion. Is inferior to ipecac. in acute dysentery, and is most valuable in the chronic form (Wa.). *Glycerin*, with infusion of flaxseed (1 to 4), to allay tenesmus (B.). *Lead Acetate*, as enemata in acute and chronic dysentery, to allay tenesmus (B.); with ipecac. and opium in pill, for acute form. See formula (Da C.). *Sulphuric Acid*, with saline purgatives (B.). *Copper Sulphate*, useful in acute dysentery; in chronic the most valuable astringent (B.). Gr. x–xx ad Oj aquæ (R.). *Ergot*, in chronic, after acute; and also in the acute form (R.). *Grape-cure*, is used successfully in the chronic form (P.). *Iron Pernitrate*, sometimes in chronic (army) dysentery (B.). *Calumba*, is of great value in chronic, with ulceration of colon (P.). *Injections* of mucilaginous enemata (as flaxseed) are of great value (R.). *Diet* is of prime importance (B.). Avoid animal food and stimulants. Liquid foods best; all cold (R.). [Compare DIARRHŒA, ENTERITIS.]

Prescriptions.

℞. Plumbi Acetat., ... gr. xxiv.
Ipecacuanhæ, ... gr. iij.
Pulv. Opii, ... gr. iij.
Fiant pil. no. xij. Sig.—One every 2 hours until blood ceases, then at longer intervals. (*Da Costa.*)

℞. Plumbi Acetat., ... gr. iv.
Morph. Acetat., ... gr. ss.
Aq. Fervid., ... ℥j.
M. Sig.—Enema to allay tenesmus.

℞. Morphinæ Sulph., ... gr. ij.
Strychninæ Sulph., ... gr. ¼.
Ac. Sulphurici Dil., ... ℥ss.
Aquæ Camphoræ, ... ℥iijss.
M. Sig.—Teasp. well diluted, every hour or two. In epidemic dysentery with prune-juice stools and marked depression.

℞. Magnesii Sulph., ... ℥viij.
Ac. Sulph. Dil., ... ʒss.
Aquæ, ... ℥viij.
M. Sig.—Tablesp. in a winegl. of water every hour or two until it operates. (B.)

℞. Ergotini, ... gr. xx.
Ext. Nucis Vom., ... gr. v.
Ext. Opii, ... gr. x.
Fiant pil. no. xx. Sig.—One every 6 hours. ([illegible])

℞. Liq. Ferri Nitratis,
Ac. Nitrici Dil., . . . āā ʒss.
Syr. Zingiberis, ... ʒj.
Aquæ, ... q. s. ad ℥iij.
M. Sig.—Teasp. thrice daily for a child of 2 years. Tonic to follow palliative treatment. (*Starr.*)

hi Subn't., ... ʒij.
nmon. Aromat., . . ʒj.
Dpii, ... gtt. xvj.
Simplicis, ... ℥ss.
e Cretæ, ... ʒjss.
–Dessertsp. to child over one
p or more to an adult, every 2
after emptying bowels by a

℞. Ext. Ergotæ Fl., ... ℥iijss.
Tinct. Opii Deodor., . . . ʒss.
M. Sig.—Teasp. thrice daily.
(*Andrew.*)

℞. Ferri Subsulphatis, ... gr. xl.
Pulv. Opii, ... gr. xx.
Fiant pil. no. xx. Sig.—One thrice daily.
Chronic dysentery.

Dysmenorrhœa.

a, in the functional form, is of much benefit when discharge is
rofuse, black and clotted; should be persevered in for 2 months or
gtt. ij every hour is most effective when the affection is not of mem-
bstructive or neuralgic character (A. A. Smith). *Belladonna*, in
or spasmodic forms, dark and fetid discharge, crampy pains and
a suppository or mild injection, together with internal administra-
elieve (P.); in neuralgic dysmenorrhœa it will permanently relieve
nite, a valuable remedy when commenced early (P.); for the con-
n in plethoric subjects (B.). *Cimicifuga*, relieves the pain in con-
iety, and is decidedly useful (P.); is said to be very efficient (R.); is
Va.). *Opium*, necessary when pain is very severe; one hypodermic
ne at each period is often sufficient (Wa.). *Codeine*, when morphine
borne, has given very complete satisfaction in several cases; gr. ¼
nd evening (Oliver). *Gelsemium*, relieves pain in the neuralgic form,
ne fluid extract every 2 hours (B.). *Chloroform*, as the liniment on a
ing out of hot water, or by inhalation as anæsthetic when pains very
metimes exerts a permanent influence (Wa.). *Ergot*, given when
en begins, is useful in the congestive form (B.). *Amyl Nitrite*, may
with benefit in the neuralgic variety, especially in chlorotic girls
dium Borate, in the membranous form, has been used with great
nbined with ext. belladonnæ (Wa.). *Ammonium Acetate* has
e power over many forms of dysmenorrhœa. The liq. ammonii
℥ss doses, with gr. ⅓ of ipecac., every 2 or 3 hours, to keep up the
the skin until the flow is well established (E.). *Camphor*, is my
medy, gr. x in mucilage and cinnamon-water; repeat the dose in
two if necessary (Dewees). *Guaiacum*, is very useful (P.); drachm
e ammoniated tincture in the neuralgic or rheumatic forms (B.).
um, is by many considered the best curative remedy for spasmodic
hœa, if given in the intervals. *Viburnum Opulus*, the fluid extract,
chm doses, has considerable reputation in some sections for uterine
rious kinds, and is useful in the spasmodic variety of this affection;
ed in combination with cannabis indica (Thomas). *Arsenic*, gtt. iij–x
s sol. with gtt. x of tinct. digitalis, ter die between the periods, gives
esults (Athill); indicated when copious membranous discharge from
d uterus (R.). *Cannabis Indica*, is very useful as a palliative in
enstruation (B.); gr. ss–j thrice daily to relieve the pain (R.). *Nux*
neuralgic form. Syrup or elixir of iron, quinine, and strychnine
ol, neuralgic form (B.); as emmenagogue, night and morning, for
ys near the period (Wa.). *Electricity*, in neuralgic, a galvanic cur-
ongestive, inverse current (B.). *Croton-Chloral*, in neuralgic form
, if depending on anæmia (B.). [See AMENORRHŒA for formula.]
il, said to relieve the pains (R.). *Rue* and *Sumbul*, are reported
Emetic of ipecac, with warm covering in bed, feet in hot water,
tea, liquor ammonii acetat. If pain very severe, a suppository of
and belladonna per rectum; best to avoid anodynes (E.). *Acces-*
al ice-bag, when scanty discharge; when menorrhagic, hot water
Sitz baths, either hot or cold, or cold alone, during intervals.

Prescriptions.

℞. Ext. Cimicifugæ Fl., . . . ʒ iv.
Ext. Pulsatillæ Fl., . . . ℥ jss.
Ext. Eriodyctii Fl., . . . ℥ j.
Syr. Aurantii, . . q. s. *ad* ℥ iv.
M. Sig.—One or two teasp. every 2 hours to six doses.

℞. Ext. Belladonnæ, ... gr. iv.
Ext. Stramonii,
Ext. Hyoscyami, . . . āā gr. v.
Quininæ Sulphatis, ... gr. xl.
Fiant pil. no. xx. Sig.—One pill thrice daily. Neuralgic dysmenorrhœa.

℞. Ext. Opii, ... gr. v.
Ext. Cannabis Ind.,
Ext. Hyoscyami, . . . āā gr. x.
Camphoræ, ... gr. xxv.
M. Fiant pil. no x. Sig.—One pill 2 or 3 times daily. (*McLane.*)

℞. Ext. Viburni Prunifol. Fl., ℥ ij.
Ext. Senec. Aurei, . . . ℥ j.
Tinct. Guaiaci Volat.,
(Dewees.) See U. S. Disp.,
p. 1456, ... ℥ xij.
Sig.—A teasp. in new milk, thrice daily, between attacks, ʒ j every hour during attack, and a hot sitz-bath.

℞. Ext. Ergotæ Fluidi, . . . ʒ vij.
Tinct. Gelsemii, ... ʒ j.
Tinct. Aconiti, ... ♏ xvj.
M. Sig.—Teasp. every 2, 3 or 4 hours. In congestive dysmenorrhœa.

℞. Ext. Cannabis Ind. Fl., . . ʒ jss.
Ext. Viburni Op. Fl., . . . ʒ vj.
Mucil. Acaciæ, ... ℥ iij.
Aq. Cinnamomi, . . . *ad* ℥ iv.
M. Sig.—Dessertsp. every 4 to 6 hours.

Dyspepsia.

Nux Vomica, gtt. v–x ter in die before meals as stomachic tonic (B.); when flatulence, weight on head and heartburn (R.). Often of the highest possible value in simple atonic form, or in the dyspepsia of drunkards (P.). *Arsenic*, drop doses of Fowler's solution before meals in irritative dyspepsia (B.); also when diarrhœa is excited by food (R.). *Bryonia*, in dyspepsia of liver origin, "bilious" headache with vomiting (P.). *Charcoal*, when flatulence; nux vomica in 5-♏ doses, before meals, better (R.). *Mercury*, gray powder gr. j, 3 or 4 times a day, when dyspepsia during chronic disease or convalescence. If constipated, calomel gr. ss with extract hyoscy. gr. iij in pill for 3 nights (R.). The yellow oxide, in doses of gr. $\frac{1}{60}$–$\frac{1}{80}$, for dyspepsia septica and kindred disorders of the alimentary canal; remarkably efficient in Austrian navy (Schaffer). *Ipecacuanha*, ♏v–x of the wine most valuable in atonic and chronic catarrhal dyspepsia (P.); constipation, depression, food "like a heavy weight" (R.). *Hydrastis*, gtt. v–xv of the tincture before meals, a good stomachic tonic (B.); in chronic dyspepsia, sluggish liver (P.). *Pulsatilla*, a good remedy when depression with fear of death, white-coated tongue, little or greasy taste, nausea, flatulency, heartburn; gtt. v in water every 4 hours (P.). *Cinchona*, with mineral acids in atonic dyspepsia (P.). Quinine, especially for town-dwellers and elderly people; checks excessive fermentation in alimentary canal (R., P.). *Chamomile*, ♏ij of oil, very useful in atonic dyspepsia (P.). *Ignatia*, useful in nervous dyspepsia (P.). *Taraxacum*, certainly does good in simple atonic dyspepsia (P.). *Belladonna*, gr. ⅙ to ¼ of the extract, once a day when there is constipation (R.). *Bismuth*, mixed with vegetable charcoal in flatulent dyspepsia (R.); gr. x with same quantity of calcined magnesia in chronic gastric catarrh, where diet cannot be regulated (Rose). *Manganese*, gr. x–xv of the black oxide in gastrodynia and pyrosis (B.). *Sanguinaria*, gtt. ij–v of tincture or gr. $\frac{1}{12}$ of alkaloid, in atonic dyspepsia promotes secretion and increases the appetite (B.). *Silver Oxide*, ½-grain doses with same quantity of ext. hyoscyami before meals in nervous dyspepsia (B.). *Xanthoxylum*, as stomachic tonic, ʒj fl. ext. in atonic dyspepsia (B.). *Simple Bitters*, calumba best, quassia or gentian or infusions of them as vehicles for acids and alkalies (B.). Calumba easily tolerated when stomach weak (R.). Gentian as stomachic and tonic very useful in atonic dyspepsia, and that of gouty subjects. The tinct. in some aromatic water, or in combination with alkalies and sedatives (Wa.). *Pepsin*, very beneficial. Scheffer's or Beale's saccharated pepsin

ochloric acid. Ingluvin also promotes digestion (B.). *Mineral*
ydrochloric or lactic with pepsin after meals in atonic dyspepsia.
oric after meals for acid pyrosis. Nitro-muriatic for dyspepsia with
spondency, oxalate of lime in urine, offensive gas, sallow complexion
Phosphoric, dilute, very efficient before meals (Da C.). *Sulphurous*
-ʒj well diluted, for acid pyrosis (B.). *Alkaline Mineral Waters*,
als in atonic dyspepsia, and highly useful in the dyspepsia of obese
3.). *Alkalies*, shortly before a meal increase the gastric juice, and
y better than acids in atonic dyspepsia. Sodium bicarbonate is the
; a full dose (gr. xl–lx), in dyspeptic attacks, with flatulence, etc.,
ffords speedy relief (Wa.). *Cascara Sagrada*, in all cases of dys-
sociated with a torpid liver and constipation; small doses at first,
increased (Wa.). *Chloroform*, gtt. xv–xx in sweetened water,
d fermentation of food and evolution of gas soon after eating; is
efficient in giving relief (Willis). *Aloes*, combined with other agents,
bitual constipation accompanies dyspepsia (R.); especially indicated
al dyspepsia, gr. ij–iv with ipecac. gr. j–ii, two or three times a week
Vater. A dry diet will entirely relieve the ice-water dyspepsia, or
o excessive beer-drinking (B.); half a tumbler of cold water ½ hour
akfast acts to some people as a purgative and removes many dys-
nptoms, but flatulent dyspepsia is often traceable to excessive water
t meals, especially that of iced beverages (R.). *Hot Water*, ½ a
int at 110°–150° F. an hour before each meal and ½ an hour before
ed, each draught sipped slowly during 15–30 minutes. As a cure
sia this is an old and efficient practice (Wa.). *Milk-cure*, has suc-
dmirably (B.); fresh buttermilk a most excellent article for dyspep-
o is koomiss. *Alcohol*, in any form, especially good wines, is useful
nic dyspepsia of sedentary livers (B.); when loss of appetite and of
power from fatigue, a glass of wine or brandy-and-water before eating
propriate; useful also in indigestion of town dwellers, or during con-
e from acute disease (R.). *Diet*. Avoid tea and hot beverages,
ed food, over-feeding and iced-water; masticate all food well, eat
all quantities and frequently. Active out-of-door habits should be
, and all articles of food known to disagree should be strictly avoided.
ACIDITY, BILIOUSNESS, FLATULENCE, GASTRALGIA, PYROSIS.]

Prescriptions.

Hydroch. Diluti, . . ʒ jss.
rini, ... ℥ ij.
Rubi Idæi, ... ℥ jss.
Pepsini (Fairchild), . ℥ iij.
Chloroformi, ... ℥ ss.
Albi *vel* Xerici, q.s. *ad* ℥ xij.
—A tablesp. thrice daily after

Nucis Vom., . . . ʒ jss.
Iydrochlorici Dil., . ʒ ijss.
rini, ... ℥ j.
Lauro-cerasi, . . . ʒ iv.
—Dessertsp. before meals, to im-
ite and digestion.

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thi Subnit., ... ʒ jss.
ii, ... ʒ j.
. Sulph., ... gr. j.
Cardam. Co., . . *ad* ℥ iv.
—Teasp. thrice daily in water.
dyspepsia.

℞. Tinct. Capsici, ... ♏xvj.
Tinct. Nucis Vom., . . . ℥ ij.
Tinct. Gentianæ Co., . *ad* ℥ ij.
M. Sig.—A teasp. in water thrice daily, with gr. ⅕ Aloin at bedtime, avoiding a starchy diet. For aggravated dyspepsia with constipation. (*Da Costa.*)

℞. Sodii Bicarb., ... ʒ ij.
Spt. Ammon. Aromat., . . ℥ ij.
Tinct. Zingib., ... ℥ j.
Infusi Gentianæ Co.,
U. S. P. 1870. q. s. *ad* ℥ viij.
M. Sig.—Teasp. or two thrice daily. For acid dyspepsia.

℞. Pepsini (Jensen), ... ʒ iijss.
Ac. Tartarici, ... gr. v.
Glycerini, ... ℥ jss.
Vini Xerici, ... *ad* ℥ viij.
M. Sig.—Teasp. after meals.

℞. Creasoti, ... ♏viij.
Bism. Subcarb, ... ʒij
Glycerini,
Aq. Menth. Pip., . . . āā ℥j.
M. Sig.—To be well shaken. A teasp. every 3, 4 or 6 hours, for pain in stomach and wind. (B.)

℞. Ac. Hydrochlorici Dil., . ʒj.
Tinct. Capsici, ... ℥ss.
Tinct. Calumbæ, ... ℥jss.
Vini Pepsini, ... *ad* ℥iv.
M. Sig.—Dessertsp. after meals. In atonic dyspepsia. (*Pancoast.*)

℞. Rhei, Gentianæ, et Cardamomi, contus., . . . āā ʒij.
Spt. Vini Gallici, ... ℥ij.
Aquæ, ... ℥vj.
Macera per horas 48, cola, et adde—
Tinct. Nucis Vom., . . . ʒj.
Potassii Carbonat., ... ʒj.
M. Sig.—Tablesp. in water thrice daily before meals.

℞. Tinct. Gentianæ Co., . . ℥ij.
Sig.—Teasp. in water thrice daily.

Dysphagia.

Cocaine, the hydrochlorate in solution, 20 per cent., as spray or by swab, relieves the dysphagia of phthisical laryngitis (P.). *Cajuput Oil*, in nervous dysphagia, used in India with considerable success (P.). *Potassium Bromide*, for congenital dysphagia of liquids in children, when no diphtheria or malformation (R.); in hysterical dysphagia (Wa.); benefits a curious affection sometimes seen in children, who from their birth can swallow solids with ease but choke at liquids (R.). *Sprays* of ammonium bromide, chlorine water, or other sedative agents in warm solution, for the dysphagia depending on specific disease of the larynx (Muirhead). *Galvanism*, in the vicinity of the œsophagus will speedily remove hysterical dysphagia (Muirhead). *Tonics*, as strychnine, iron and quinine, for post-diphtheritic dysphagia. *Iced Fluids*, slowly swallowed, will often remove spasmodic dysphagia (Wa.).

Dyspnœa.

Morphine, hypodermically, the most efficient agent in relieving dyspnœa from cardiac disease, or any other form; but if albumen in the urine it must be withheld (Allbutt); controls dyspnœa from any cause, more energetically than any other agent, giving the very power to breathe (Huchard). *Grindelia*, of great service in dyspnœa with cough, occurring in emphysema (W.). *Cimicifuga*, has often relieved most distressing cases from cardiac disease (P.) *Spigelia Anthelmia*, produces and often relieves it when with palpitations (P.). *Valerian*, proved useful when nervous (P.). *Prunus Virginiana*, has proved very efficacious in cardiac dyspnœa (P.). *Amyl Nitrite*, serviceable in cardiac dyspnœa and other forms (Wa.). *Asafœtida*, in combination with other antispasmodics, often very beneficial in the dyspnœa of chronic bronchitis (Wa.). *Chloroform*, a few whiffs give temporary relief in the cough and dyspnœa of phthisis and bronchitis (Wa.). *Iodide of Ethyl*, by inhalation, is very serviceable in many forms (Sée). *Terpine Hydrate*, of especial value in asthmatic dyspnœa, gr. ij every ¼ hour until gr. x are taken (Boyland). *Terebene*, for the dyspnœa of chronic emphysema of the lungs; efficient in combating this symptom of various pulmonary affections. *Arsenic*, for the dyspnœa of weak heart. *Dyspnœa* is a symptom, and may be referable to cardiac, pulmonary, pharyngeal, laryngeal or tracheal disease (T.). [Compare ASTHMA, BRONCHITIS, CROUP, EMPHYSEMA, PHTHISIS, ETC.]

Prescriptions.

℞. Potassii Iodidi, ... ʒj.
Tinct. Lobeliæ, ... ℥iv.
Syr. Sanguinariæ, ... ℥j.
M. Sig.—Teasp. every hour.

℞. Liq. Morph. (Magendie), . ʒj.
Spt. Etheris Compos., . . ʒij.
Syr. et Aquæ, ... *ad* ℥ij.
M. Sig.—ʒss–j thrice daily.

Dysuria.

aris, gtt. j (sometimes v) of tinct. ter die, for frequent micturition with
.). Irritable bladder, vesical tenesmus (B.). *Cannabis Indica*, relieves
(R.); when bloody urine (P.); an excellent anodyne in painful affec-
the bladder, having specific action on that organ. *Belladonna* and
mus have similar sedative effects in vesical and urethral irritation (P.).
, as infusion, is often a valuable adjunct (P.). *Opium*, in suppository,
ed with hyoscyamus, gr. ij with gr. x, an excellent palliative (P.); an
of laudanum or morphine hypodermically to relieve the strangury caused
ers (B.). *Camphor*, is said to relieve strangury (R.). *Chimaphila*, has
ted power (P.). *Squill* often produces the best effects, especially a com-
of the acetum with spt. etheris nitrosi, equal parts, of which ℨss in ℥ij
ater, every hour or oftener (Wa.). *Gelsemium*, a useful remedy (B.).
n paralytic dysuria, with sensation of bladder being imperfectly emptied
lkalies, the citrates, when dysuria from uric acid crystals in young male
(R.). *Nitrous Ether*. Spt. etheris nitrosi ℨj–jss in any convenient
a popular and efficacious remedy (Wa.). *Diluent Drinks*, freely,
ly a decoction of uva ursi, or of cotton-root (P.). [Compare VESICAL
VES, page 45, also, BLADDER, IRRITABLE, page 496, and CYSTITIS,
9.]

Ecchymosis.

a, rapidly disperses, if administered shortly after injury, ♏v–x in water
vo or three hours (P.). *Alcohol*, diluted more or less, according to the
of irritation present, is a good lotion (P.). *Hamamelis*, the tincture
with 5 to 8 parts of water, as lotion when much discoloration. *Ammo-*
hloride, in solution, as lotion on lint, or with bread or linseed to form a
, in ecchymosis of the eyelids (Wa.). [Compare BRUISES, PURPURA.]

Ecthyma.

ine, cures, though in many subjects will cause it (B.); malnutrition (R.).
e liquor plumbi subacet., ℨj ad Oj aquæ, a soothing application (Wa.).
ride, the glycerite, with a little camphor, an excellent application (Wa.).
r Oil, internally and locally (B.). *Grape-cure*, often happily modifies
orax, a solution in rose or elder-flower water (Wa.). *Chlorinated Lime*,
on as a lotion (Wilson). *Chrysarobin*, internally, half-grain doses, in
r pill, given with good results (Stocquart).

Ectropium and Entropium.

Nitrate, freely to the exposed surface, in ectropium of lower lid due to
phy of conjunctiva after inflammation (C.). *Collodion*, successfully
entropium to restore position of the lid by its contraction. Should be
rated (Wa.). *Faradization*, in paralytic ectropium (C.). *Operative*
es, of great variety, are in use, Arlt's being the best for bad cases in the
d (Roosa). Epilation of lashes gives temporary relief in entropium.

Eczema.

ury, as black and yellow wash in early vesicular and pustular conditions.
ial ointments are the most efficient of the local applications, especially
f white precipitate, nitrate, mild chloride, and black oxide. Ointments
iniodide or bichloride as irritating application in chronic indolent form
Brown citrine ointment nightly in eczema of the margin of the eyelids
etaching scales (B.); very useful when eczema on hairy parts of face,
best mixed with a tar oint. (R.). *Arsenic*, ♏v of Fowler's solution thrice
n a full stomach, gradually diminishing the dose for chronic type (B.);

especially in eczema of vulva, anus and scrotum (R.). Small doses for acute, full doses for chronic form; the urine to be closely watched and the drug discontinued on the least sign of renal irritation (Pf.). *Arseniate of Sodium* hypodermically into an eczematous patch, to change the indolent form into an active one (Pf.). *Rhus Tox.*, externally and internally, when burning and itching, quickly subdues in some cases (P.); in chronic form with rheumatism worse at night-time; also in acute cases if given at the very beginning, ♏$\frac{1}{10}$ of a good tincture enough dose to begin with (Pf.). *Phosphorus*, of undoubted service in eczema of long standing, probably acts as a hepatic stimulant, gr. $\frac{1}{100}$ to $\frac{1}{25}$ in oil, or reliable pill (Pf.). *Viola Tricolor*, an infusion the best form, with purgative doses of senna for a few days, then alone, in eczema of the head and face; gives prompt results (good or bad), often aggravating, which, though good in chronic forms, must be avoided in acute types (Pf.). *Calcium Sulphide*, gr. $\frac{1}{100}$ to $\frac{1}{25}$ in acute and chronic cases of pustular character, the impetigo of old writers; small doses in acute form, larger ones in chronic cases (Pf.). *Sulphur*, internally and sulphides as baths, but not in the acute stage (R.); solution of potassium sulphide in water locally (B.). *Liquor Potassæ*, or a stronger solution of potash, to infiltrated patch of chronic eczema, before attempting to heal it (Pf.). *Croton Tiglium*, the seeds bruised in alcohol, as liniment (Wa.); the oil as basis of stimulating applications in the chronic form (Pf.). *Glycerite of Tannin*, locally (R.). *Potassium Iodide*, is often efficient where a syphilitic history or inheritance can be traced. *Salicylic Acid*, locally, in eczema of hands and feet has been very successful (B.): in plaster is of very great value, and becoming more recognized every day, especially by Unna, Pick, etc. The best form is a salicylated soap-plaster (see formula below). *Belladonna*, gr. $\frac{1}{4}$ of extract with gr. iij of quinine sulphate thrice daily in eczema of the hand, with bismuth subcarbonate as a dusting powder (B.). *Zinc Salts*, the oxide and carbonate as dusting powders, or the sulphate, etc., in astringent ointments (Bulkley). *Buckwheat Flour*, one of the best dressings, a limb may be enveloped in a bag filled with the flour (Bulkley). *Tar*, internally, the pix liquida in doses of gr. ij–v thrice daily, when arsenic fails to relieve or is contraindicated; locally in third stage when redness, dryness and scaling. Oleum Cadini, when genuine, is the best form of tar, mixed with simple ointment (ʒss–j ad ℥). Ol. Rusci or Pix Liquida may be used (Pf.). *Conium*, the tincture may be added to one of the ointments for the pruritus, which is usually very obstinate. So also Stramonium or crude Petroleum (Pf.). *Hamamelis*, locally as antipruritic, and in chronic eczema marked by decided venous retardation (Pf.). *Benzoin*, to allay itching, the compound tincture painted on the skin (R.). *Lead*, soluble salts as lotions when much inflammation and discharge (R.); also in early vesicular and pustular conditions. Diachylon ointment comes next in efficiency to mercurial ointments (Pf.). *Zinc*, the oxide and carbonate as dusting powders (R.); the sulphate with alum, glycerin and rose-water, an excellent lotion (B.); the oxide is not curative, but as a protective is the best ointment when freshly and well made, for use over a large surface (Pf.). *Lime-water*, as sedative application and to check discharge; after inflammation is subdued, lime-water and glycerin (R.). *Carbolic Acid*, externally and internally in chronic forms (B.); is analogous to tar, and suitable to the same types of the affection as the latter is given for (Pf.). *Phytolacca* has cured obstinate cases (B.). *Graphite*, in ointment, 1 to 10, or with some inert powder, as lycopodium or precipitated phosphate of calcium, in fissured eczema, especially that of the hands and behind ears (Pf.). *Bismuth*, the subnitrate or subcarbonate locally (R.). *Anacardium Orientale* (oil of Cashew), as ointment in patches of indolent chronic eczema (Pf.). *Iris Versicolor*, in chronic eczema of gouty patients invaluable as a hepatic stimulant, ♏v–x of tincture from the fresh root twice daily (P.). *Glycerin*, locally at night when caustic lotions have been used (R.). *Electricity* has cured obstinate cases (B.). *Milk-cure*, when acid indigestion present (B.). *Water*, locally is injurious, unless its sp. gr. approaches that of the blood serum. Rosewater with a little glycerin and sodium chloride when ablution necessary in second stage, that of exudation and crusting (Pf.). *Soaps*, petroleum, cade or carbolic (R.); sapo viridis, to soften up infiltrated

hronic form, instead of the potash solutions mentioned above (Pf.).
be largely vegetable, especially those which are eaten raw. Cod-
a supplemental article of diet. *Chaulmoogra Oil*, in old cases is
at benefit, as ointment. The oil 1 part to 2 or more of vaseline
of Cajuput, put up by mistake of druggist for oil of cade made a
cure in a case which had resisted treatment for some time.

Prescriptions.

Internal.

ricolor, ... ℥j.
. . . . ʒss.
chartulæ no. iv.
an infusion with hot water
er, and take every night.
(*Piffard.*)

Diachyli Simplicis,
Saponat., . . āā p. xl.
, ... p. xv.
alicylici, ... p. v.
las. Salicyl. Compos. (*Pick.*)

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quidæ,
m. Anisi, . . . āā ʒijss.
æ Calcin., q. s.
l. no. c. Sig.—Two to ten
(*Miguel.*)

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ri Amari, ... ℥jss.
olutani, ... ℥iij.
ass. Arsenit., ... ʒj.
nethi, ... ℥ij.
-Teasp. to dessertsp. thrice
(*Wilson.*)

Ammon. Citrat., . ʒj.
Citratis, ... ʒij.
assii Arsenit., . . . ʒj–ij.
ucis Vom., . . . ʒij.
nchon. Comp., . *ad* ℥iv.
Teasp. in water, after meals,
lterative. (*Bulkley.*)

Local.

℞. Ung. Zinci Oxidi, ... ℥ss.
Ung. Plumbi Subacet., . . . ʒss.
Chloralis, Camphoræ, . āā gr. xv.
M. Sig.—Use as oint. 2 or 3 times daily after bathing with warm water. For local use in general eczema. (*Gross.*)

℞. Olei Cadini, ... ʒss–j.
Zinci Oxidi, ... ʒss–j.
Ung. Aquæ Rosæ, ... ℥j.
M. Sig.—Ointment, antipruritic and mildly astringent. (*Bulkley.*)

℞. Aluminis, ... gr. xx.
Zinci Sulphat., ... gr. x.
Glycerini, ... ℥j
Aquæ Rosæ, ... ℥iv.
M. Sig.—Lotion. (B.)

℞. Liq. Plumbi Subacet., . . ℥j.
Glycerini, ... ℥ss.
Aq. Laurocerasi, ... ℥ijss.
M. Sig.—Lotion, when there is much weeping. (B.)

℞. Ol Cadini, ... ℥ss.
Glycerini, ... ℥j.
Ung. Diachylon, ... ℥ijss.
M. Ft. unguentum. In squamous eczema with thickened skin. (*Fox.*)

℞. Hydrarg. Ammoniat., . . gr. xv.
Glyceriti Amyli, ... ℥j.
M. Ft. unguentum. (*Muller.*)

Emaciation.

Phosphate, is especially useful in chronic wasting disease (R.).
sed by cattle-breeders to fatten oxen, etc., quickly (Tr.). *Iodine*,
appetite and digestion, and gives strength and plumpness to the
Cinchona, in small doses improves the appetite, and the general
Iron Salts, cause marked gain in flesh and color (Wa.); remark-
e the appetite and digestion (B.). *Cod-liver Oil*, internally and
ith friction, often very effective in the mal-nutrition and marasmus
P.). *Olive Oil*, by friction, daily inunctions are of value in many
ases (P.). *Pepsin*, to promote digestion of food (P.). [Compare
ENTERICA.]

Emissions and Erections.

Belladonna, when emissions, genitalia relaxed, atonic state (B.): in gradually increasing doses produces good results, even in extreme cases of emissions (Wa.). *Camphor*, fails as often as it succeeds (P.). *Potassium Bromide*, exercises special influence as a sedative in irritable states of the genito-urinary organs (Wa.). *Cimicifuga*, as tonic to the nervous system, removes irritation and melancholy, procures sound and refreshing sleep (Wa., P.). *Lupulin* useful to check emissions (P.); gr. v–x, or xv, to keep penis at rest (Wa.). *Ruta*, in small doses to limit discharge (P.). *Chloral*, at bed-time, repeated every night until the habit is broken off (Wa.). *Iron*, the tincture of the chloride in ʒ doses at bed-time, sometimes conquers nocturnal emissions (Wa.). *Cocaine*, a few drops of a 4 per cent. solution upon the glans penis, promptly controls an erection. [Compare ANAPHRODISIACS, page 47, also CHORDEE, SPERMATORRHŒA.]

Emphysema of the Lungs.

Morphine, gr. ⅙, and *Atropine*, gr. $\frac{1}{120}$, hypodermically for the asthmatic attacks: no remedy so efficient. The disease being incurable, treatment must be chiefly palliative (B.). *Potassium Iodide*, in full doses alone, or combined with the bromide, affords most relief next to morphine (B.). *Strychnine*, is a valuable respiratory stimulant; useful where there is constant dyspnœa with prolonged expiration (Wa.). *Stramonium*, the leaves smoked for the asthma and dyspnœa before retiring, will often give a good night's rest (Wa.). *Ammonium Iodide*, with arsenic, for the bronchitis, with copaiba, turpentine or eucalyptol, continued for some time (B.). *Digitalis*, or hydragogue cathartics as pulvis jalapæ comp. for the dropsy (Da C.). *Arsenic*, when connected with recession of a rash is esp. useful (R.). Long-continued it ameliorates (B.). *Terebene*, gives good results upon the dyspnœa. *Lobelia*, allays the dyspnœa which accompanies capillary bronchitis in emphysema (R.). *Senega*, often acts beneficially (P.). *Cod-liver Oil*, continued for a long time (R.). *Hypophosphites*, are useful (B.). *Chalybeates*, the phosphate of iron, quinine and strychnine (B.). *Grindelia*, for asthmatic breathing and bronchitis (B.) of great service (Wa.). *Chloral*, for the short breath of such patients brought on by catching cold. If obstructed circulation, caution required (R.). *Bleeding and Purging*, have been used with great success in many emphysematous conditions (R.). *Compressed Air*, the only scientific remedy yet brought forward for this disease; affords much relief which is sometimes permanent (B.); the apparatus of Waldenberg is the best for this purpose. [Compare ASTHMA, BRONCHITIS, DYSPNŒA.]

Prescriptions.

℞. Potassii Iodidi, ... ʒ iij.
Strychninæ Sulph., ... gr. j.
Liq. Potassii Arsenit., . . ʒ ijss.
Aquæ Laurocerasi, . . *ad* ℥ iv.

M. Sig.—Teasp. 4 times daily. For relief of dyspnœa, toning the cardiac action, removing the bronchial catarrh, and preventing the progress of the affection.

(*Hughes.*)

℞. Potassii Chlorat., ... ʒ jss.
Tinct. Belladon., ... ʒ jss.
Ext. Pruni Virgin. Fluidi,
Tinct. Cinchonæ Comp., āā ℥ ij.

M. Sig.—A dessertsp. 4 times a day. Where chronic bronchitis and anorexia. Dry cups also to chest night and morning.

(*Da Costa.*)

Empyema.

Carbolic Acid, a weak solution to be injected after evacuating the pus (R.). *Carbolate of Iodine*, has been injected with benefit (B.). *Iodine*, in solution to be injected after tapping (R); the undiluted tincture may be thrown in without risk and with great benefit; or the compound solution ℥j to ℥xv aquæ, as wash for the cavity to prevent reformation of pus (B.). *Chlorine-Water*, or solution of *Quinine*, to wash out the cavity (R.). *Salicylic Acid*, in solution, answers well for the same purpose (P.). *Ammonium Acetate.* The official mistura ferri et ammonii acetatis, with quinine and stimulants, if the affection shows a tendency to linger (Da Costa).

Endocarditis.

Aconite, should be given early in all inflammations of serous membranes (Wa.); gtt. ½ or less, frequently (R.); it is rare to meet with permanent organic heart disease as a result of rheumatic fever when the disorder is treated with aconite from its commencement (P.). *Spigelia Anthelmia*, is very useful in rheumatic endocarditis (P.). *Opium*, in inflammations of serous membranes (B.). *Digitalis*, to control the circulation, especially where irregular heart action (Da C.). *Veratrum Viride*, has been used with remarkable effect on the pulse (Wa.). *Alkalies*, as potassium or ammonium carbonate, freely until urine is alkaline, to prevent permanent changes about the valves or orifices (Da C.). *Potassium Iodide*, to promote absorption of the exuded lymph. *Quinine*, at the onset, may check the inflammation (B.). *Salicylic Acid*, is useful in the rheumatic form (P.). *Rest* for some days after active signs have abated, with agents to lower the blood-pressure within the heart and vessels (Fothergill). *Leeching*, in the acute inflammation is to be recommended if done early, later is useless. Use cups if no leeches are at hand (Da Costa). *Poultices*, give great relief and are of decided benefit (Da C.). *Stimulants*, as ammonium carbonate, etc., freely, if signs of oppressed circulation appear (Da C.). *Iron*, the tincture of the chloride with alkalies, if pyæmic symptoms are manifested (Da C.). [Compare PERICARDITIS.]

Endometritis.

Carbolic Acid, undiluted, on cotton-wrapped probe; no better method of treating uterine catarrh (B.). *Iodine*, the most valuable of all local remedies (E.); Churchill's tincture (Iod. gr. 75, Pot. Iod. gr. 90, Alcohol ℥j), one of the most useful applications to the endometrium (Mundé). *Iodized Phenol* (Iod. j, Ac. Carbol. iv), on cotton-wound probes, applied to the uterine cavity, has given the best results of any agent used for 8 years past (Battey). *Chromic Acid* as caustic, when slough is required; should only be used after dilatation of cervical canal, and at the patient's house (Mundé); a solution of gr. xv to ʒj of hot water applied with success to the uterine cavity for catarrh (Wooster). *Nitric Acid*, fuming, to uterine cavity through intra-uterine speculum (Atthill); is considered by many the one agent for all forms of intra-uterine medication. Is efficient and comparatively safe, but produces too much cicatricial tissue (Mundé). *Iodoform*, as suppository in rectum (B.); in pencils to uterine canal. *Iodo-tannin*, locally in chronic cases (B.) *Ergot*, or better *Ergotine*, gr. j, subcutaneously, for the train of uterine disorders depending on passive congestion of the organ (P.). See HYSTERIA for formula. *Glycerin*, as a local application introduced by Sims, is of great value; esp. as vehicle for impure carbolic acid, iodine, on cotton, or oakum (E.). *Hot Water* injections in large quantity about the os uteri, are of great value (E.); as usually made are of no value, must be applied by special syringe, in the dorsal recumbent posture with elevated hips, at a temperature of 100° to 120° F. twice daily for at least 20 minutes each time, and persevered in for months and years (Mundé). Compare UTERINE CONGESTION and HYPERTROPHY.]

Prescriptions.

℞. Potassii Iodidi,
Potassii Bromidi, . . . āā gr. xx.
Tinct. Iodi, ... ʒss.
Aquæ, ... ʒij.
M. For hypodermic injection into cervix, in chronic cervical metritis.
(*Bennett.*)

℞. Ergotini, ... gr. xx.
Tinct. Iodi, ... ʒj.
Glycerini, ... *ad* ℥j.
M. Sig.—Apply twice daily with camel's hair brush, in cervical metritis.
(*Dabney.*)

Enemata.

Enemata, for an infant, ℥ss–j; child 2 to 5 years, ℥ij–vj; 5 to 15 years, ℥vj–Oj; adult, Oj–1 quart. A simple domestic enema consists of soapsuds with a little common salt, or a pint of cold water (B). Simple warm water or gruel sometimes; or, to one or the other of these add soap, turpentine or castor oil, with soap or gruel to suspend the two latter. Very cold water may be used without inconvenience. Starch, boiled or raw, of cream consistence, temperature 100°, with a few drops of tinct. opii, in extreme cases of choleraic diarrhœa, or that of phthisis, or typhoid fever (R.). *Nutrient Enemata*, should contain materials for artificial digestion, as the rectum is not an organ of digestion, and to secure rapid osmosis should have an acid reaction. A suitable formula is appended below. Inject slowly and not frequently, five times in twenty-four hours should be the maximum. Defibrinated blood has also been used as a rectal injection with good results, being completely absorbed (B.). Should not exceed three or four ounces of bland material, injected slowly, after ascertaining that the rectum is not filled with fæces (R.). [Compare ENEMATA, *ante*, page 462.]

Prescriptions.

Nutrient Enema.

℞. Infusi Carnis (Beef-tea), . ℥iv.
Acidi Hydrochlorici, . . . ♏x.
Glyceriti Pepsini (Scheffer), ʒij.
If rectum irritable add 10 to 20 drops of Laudanum.

Enema Ricini et Terebinth.

℞. Ol. Ricini, ... ℥jss.
Ol. Terebinth., ... ℥ss.
Ovum, ... no. j.
Decocti Hordei, *vel*
Aq. Fervid., ... ℥xiv.

Enteritis.

Opium, to the point of tolerance, is *the* remedy, the deodorized tincture in 10-drop doses every second or third hour, according to age (Da Costa); of great value to control inflammation and quiet the intestines (B.); proves of signal use (Wa.). *Aconite*, of great utility in acute inflammation with high temperature, sthenic condition, resisting pulse (R., P.). *Arsenic*, surprisingly curative; small doses, with opium (B.). *Podophyllum*, with occasional doses of aconite, will often allay the vomiting and diarrhœa (P.). *Ricinus Communis*, is employed with great advantage (P.). *Turpentine*, stupes, hot, over seat of disease, are of manifest advantage (Wa.). *Skim-milk*, is of the highest value as sole diet in acute inflammation of digestive organs (B.). *Water*, cold and hot, principally cold, or ice, of unquestionable advantage (B.). *Poultices*, linseed, large and hot (Wa.); may be used or not, as the patient feels benefit from them or otherwise (Da C.). *Water*, hot fomentations constantly followed by a wet compress. Perfect quiet in bed. Ice or cold water freely swallowed. No food until inflammation subsides, then beef-tea, milk, gum-water, etc., the very mildest and most bland diet for four or five days (Da C.). [Compare DIARRHŒA, DYSENTERY, CHOLERA, PERITONITIS, TYPHLITIS.].

Enuresis.

Belladonna, no single remedy so uniformly successful. Children require large doses. A solution of atropine, best, gr. $\frac{1}{120}$ to $\frac{1}{60}$ (B.). The best remedy for children, gtt. x–xx of the tinct. three times a day. If unsuccessful, and no worms or other irritation exist try strychnine, cantharides, turpentine, santonin or galvanism (R.). Small doses are useless (P.). *Santonin*, in over doses produces incontinence of urine in children, but curiously will sometimes stay the habit, even when not dependent on worms, and in cases where belladonna fails (R.); in the enuresis from worms (P.). *Cantharides*, one or two drops of the tinct. three or four times a day in middle-aged women or the aged, even when due to paralysis; sometimes also in children, but for them belladonna is generally better (R.). *Chloral Hydrate*, enuresis in chiln (R.); three-grain doses thrice daily for infantile incontinence (Da C.). *rchnine*, may succeed when above remedies fail (B.); sometimes useful old people with paralysis of bladder, also for children (R. P.). *Buchu*, n successful in chronic enuresis (P.). *Turpentine*, small doses sometimes ove the trouble (B.). *Lupulin*, said to be useful; Herzfelder used it with antage. *Rhus Aromatica*, has proven curative in 75 per cent. of cases ted with it, and of great benefit in the other 25 per cent. The fluid ext, ♏x–xv four times daily in glycerin and water (Stein). *Scutellaria*, rekably efficient in many instances, ʒ doses of the fluid extract thrice daily a child of 12 years old. *Potassium Nitrate*, has been recommended for dren (R.). *Potassium Bromide*, succeeds in some cases (Wa.). *Collodion*, ted to form a cap over end of prepuce (R.). *Ergot*, when from paralytic e of sphincter (B.); said to be useful (R.). *Iron Iodide*, the syrup ♏xv–xx, diluted with water, ter die, in pale, delicate, strumous children (B.); somees useful even when no worms (R.). *Habits*. Children to be taught to in water as long as possible during the day; little salt to be eaten; abstice from fluids not necessary; bland fluids diminish acridity of the urine. ping meat from the diet has cured several cases permanently, after all edies had been tried without success.

Prescriptions.

Strychninæ Sulph., ... gr. j.
Pulv. Cantharidis, ... gr. ij.
Morphinæ Sulph., ... gr. jss.
Ferri Reducti, ... gr. xx.
pil. no. xl. Sig.—One thrice daily to ild of 10 years. (*Gross.*)

℞. Tinct. Ferri Chloridi, . . ℥ ij.
Ext. Ergotæ Fluidi, . . . ʒ v.
Spt. Chloroformi, ... ʒ ij.
Tinct. Quassiæ, . . . *ad* ℥ iv.
M. Sig.—A teasp. in a winegl. of water thrice daily for children.

Epididymitis.

conite, alternately with *Pulsatilla*, the latter in very small doses, a few os of tinct. in a glass of water, a teasp. every 2 or 3 hours produces the piest effects (Pf., St.). *Belladonna*, the extract, ʒj–ij ad ℥j of glycerin and er, on lint, applied to the inflamed testicle (Bumstead). *Tobacco*, with lin meal, as poultice, cautiously (P.). *Mercury* and *Morphine*, locally, a 20 cent. oleate by inunction, in cases of syphilitic origin (R.). *Silver Nitrate*, ad ℥iv aq. destil. freely applied to the scrotum will sometimes abort an idymitis (Wa.). *Strapping* and suspensory bandage to support the testi and rest it in the recumbent posture from the beginning, with a saline artic to clear the bowels, are all measures of great importance (Bumd). Compare ORCHITIS.

Epilepsy.

myl Nitrite, inhaled at the beginning of the aura will prevent an attack ; or ♏ij–v in mucilage, when fits are very frequent (R.). *Nitro-glycerin*, slower in action than amyl nitrite, but more enduring (Pf.). *Ignatia*, vulsions unattended with cerebral congestion (P.). Par excellence the roller of functional phenomena of the cerebro-spinal axis (Pf.). *Bellana*, in petit mal and nocturnal epilepsy, in pale anæmic subjects, should iven for a year or more (B., Tr.); extr. and leaves ⅛ of each in pill, every at same hour, one additional pill every month (Tr.). Useful, especially n from fright (P.). *Atropine* better, drop-doses of a 1 per cent. solution he neutral sulphate in white brandy (Tr.). *Arsenic*, in epileptiform ver from stomach disorder (B.); sometimes useful (R.). *Chloroform*, by lation during paroxysm and also in interval (Wa.); is of high value ecially in cases of an hysterical character (Brown-Séquard). *Chloral*, the t suitable remedy for the nocturnal variety, in full doses at bed-time (B.).

Cannabis Indica, has given good results; is suitable for petit mal, the nocturnal variety, and with strychnine, belladonna, or picrotoxin, for cases characterized by anæmia and depression (B.). *Quinine*, when of malarial origin (P.); often useful in intermittent epilepsy (Ros.). *Silver Nitrate* is not without efficacy, and was formerly much used, but the danger of staining the skin has caused its disuse, especially as better agents have been found (Wa.). *Picrotoxin*, anæmic subjects, attacks occurring at night, $\frac{1}{60}$ to $\frac{1}{20}$ of a grain hypoderm., or $\frac{1}{30}$ to [illegible] by stomach (B.). Benefits cases resulting from onanism (P.). *Copper Salts* may be useful in cases originating from stomach, formerly much used (B.) the nitrate or oxide often given with benefit (R.). *Strychnine*, idiopathic epilepsy, injurious in symptomatic. Benefits when bromide of potassium fails. Cerebral anæmia; nocturnal epilepsy (S., Pf.); if bromides fail and case is anæmic, give Strychnine, gr. $\frac{1}{30}$ ter die, and push it (B.). *Sodium Bromide*, gr. xx ter die, will arrest epilepsy without producing the cerebral symptoms of bromism (Clymer). *Potassium Bromide*, gr. xl ter die before meals, double dose at bed-time, for two or more years after all epileptic indications have ceased. Is generally useful, especially in daytime seizures and grand mal of sexual origin; also for infantile convulsions (B.); especially in convulsive form, but often powerless (R.) *Digitalis*, ♏x of the tincture, with gr. xx of potas. brom. thrice daily, in cases complicated with cardiac dilatation (Gowers). *Lithium Bromide*, ʒss daily, acts in some cases after pot. brom. has failed, and is generally efficient in about one-half the dose of the latter salt (S. Weir Mitchell). *Nickel Bromide*, gr. v thrice daily, is remarkably efficient in the epilepsy occurring at the menstrual epoch, and those which have withstood the action of the other bromides (Da Costa). *Ferrum Bromide* will often cure cases in weak and anæmic subjects; also with potassium bromide to combat the anæmia and depression produced by the latter (B.). *Zinc Oxide*, probably useful only in cases originating from the stomach. Much said for and against it (B., R.). *Turpentine*, has long been used, when due to reflx impression of intestinal parasites (B.). *Conium*, not equal to the bromides (B.); not of much value (P.). *Valerian*, has been used with some advantage (R.). *Bryonia*, has an ancient reputation (P.). *Rue*, may benefit when seminal emissions (P.). *Anæsthetics*, are rarely called for (W.). *Fats and Oils*, especially cod-liver oil when faulty assimilation exists (B.). *Galvanism*, only in idiopathic epilepsy (B.). *Meat Diet*, in many cases must be prohibited entirely (B.). [Compare CONVULSIONS.]

Prescriptions.

℞. Potassii Bromidi, ... ℥ ss.
Sodii Bromidi, ... ʒ ss.
Liq. Potas. Arsenitis, . . . ʒ ss.
Ext. Conii Fl., ... ♏ l.
Aquæ Cinnamomi, ... ℥ ij.
Infus. Gentian. Co., . . *ad* ℥ viij.
M. Sig.—Tablesp. two hours after each meal,

℞. Potassii Bromidi, ... ʒ j.
Ferri Bromidi, ... gr. iv.
Aquæ, ... ℥ ij.
Syrupi Simplicis, ... ʒ vj.
M. Sig.—Tablesp. twice daily.

℞. Strychninæ Sulphatis, . . gr. j.
Acidi Sulph. Dil., ... ♏ x.
Aquæ Destill., ... ℥ iv.
M. Sig.—Teasp. after each meal, gradually increased to a dessertsp.

℞. Potassii Bromidi,
Sodii Bromidi,
Ammonii Bromidi, . . . aa ʒ iij.
Potassii Iodidi,
Ammonii Iodidi, . . . aa ʒ jss.
Ammonii Carbonat., . . . ʒ j.
Tinct. Calumbæ, ... ℥ jss.
Aquæ, ... q. s. *ad* ℥ viij.
M. Sig.—A teasp. and a half before each meal, and three teasp. at bed time.
(*Brown-Séquard.*)

℞. Potassii Bromidi,
Ammonii Brom., . . . aa ℥ j.
Ext. Ergotæ Fl., ... ℥ [illegible]
Aq. Cinnamomi, . . . *ad* ℥ viij.
M. Sig.—Dessertsp. in water thrice daily. When maniacal excitement and danger of cerebral hemorrhage. (*Smith.*)

Epistaxis.

Aconite, has been used with the best results (P.); small frequent doses quickly check epistaxis in children and plethoric people (R.). *Arnica*, is of great service when from mechanical violence (P.). *Belladonna*, when of congestive origin (P.). *Ipecacuanha*, has been highly praised (R.); acts upon the vessels (B.); gr. j–ij every quarter hour until nausea is felt, but vomiting need not be excited (Wa.). *Hamamelis*, venous hemorrhage (Pf., R.). *Ergot*. ʒss–ʒj of fresh powdered ergot, or ʒj–ʒij of flu. ext. every half hour or hour, necessary in urgent cases (B.). *Alum*, injected or snuffed up in powder (R.). *Iron Spray*, in obstinate cases liq. ferri subsulph. ʒj–℥viij aquæ by spray or injection. The tinct. of the chloride also useful (B.); diluted ʒij in ℥vj injected into the nostrils is often effectual (Wa). *Tannin*, finely powdered, blown into the nostrils through a quill (Wa.); a strong solution, ʒij ad ℥iv, by nasal syringe (B.). *Turpentine*, may be given internally with advantage (Wa.); especially in debilitated conditions (B.). *Lead Acetate*, gr. ij–iv with opium gr. ss–j, proves signally useful (Wa.). *Vinegar*, on lint introduced into the nostrils, sometimes highly efficient (Wa.). *Digitalis*, is of undoubted benefit (B); the infusion best (R.). *Transfusion*, when death from exhaustion is apparently imminent (B). *Facial Artery*, compression of (R.). *Sundry*. Keep head elevated and cool; warm the feet and hands by plunging into hot water; apply ice over the nose; resort at once to the tampon, if bleeding becomes alarming. [Compare HEMORRHAGE, for formulæ.]

Eruptions.

The following-named Drugs produce the eruptions indicated respectively after each, viz.—*Aconite*—vesicular exanthemata. *Arsenic*, erythema and papules, vesicles and pustules. *Belladonna*—as Quinine. *Bromide of Potassium*—papules, pustules, deep tubercles with ecchymoses, ulcers, pemphigus. *Cinchona*—as Quinine. *Carbolic Acid*—erythema. *Chloral*—erythema, itching, desquamation, eczema, purpura and petechia. *Copaiba and Cubebs*—pemphigus, erythema, eczema. *Cod-liver Oil*—acne. *Digitalis*—erythema after long usage. *Iodide of Potassium*—papules, vesicles, pustules, eczema, ecthyma, ecchymoses and purpura. *Mercury*—erythema, eczema. *Opium and Morphine*—erythema, papular eruption with marked desquamation and itching. *Phosphorus*—purpura. *Quinine*—erythema, scarlatina, papular erythema, hemorrhagic purpura, pemphigus and prurigo. *Rhus Toxicodendron* (and other varieties of Sumach)—vesicles, perhaps pustules, with redness, swelling and intolerable itching. *Salicylic Acid*—purpura, pemphigus, vesicular angina. *Santonin*—pemphigus, vesicles. *Stramonium*—as Quinine. *Strychnine*—as Quinine. *Turpentine*—as Copaiba.

ARTICLES OF FOOD producing eruptions are—*Acid Fruits*—may cause acute eczema. *Strawberries*—urticaria. *Apples*—acneform efflorescence about the mouth. *Walnuts*—inflammation of buccal mucous membrane. *Shell-fish*—urticaria. *Roast Turkey*—in one case caused great urticaria. *Lager Beer*—acne in some. *Alcohol*—aggravates cutaneous inflammations. *Butter*, *Oatmeal*, *Buck-wheat*, *Fish*—are popularly credited with causing eruptions, but there is no evidence therefor.

Erysipelas.

Pilocarpine, to abort the disease, very efficient if used early, gr. ⅙ hypodermically, or fluid extract of Jaborandi internally: when free diaphoresis occurs, the temperature and pulse fall to normal, and the disease is checked Not suitable to debilitated cases, or those with a weak heart (Da Costa). *Aconite*, a favorite remedy with Liston, if used at beginning, when fever high (Wa.); no more useful agent in idiopathic erysipelas, especially facial, and cases of sthenic type (B.); at onset, often cuts the attack short; is very useful in the erysipelas following vaccination (R.); very valuable in sthenic cases (P.); especially so in traumatic erysipelas (Tr.). *Belladonna*, ♏v of tincture in water every hour for five or six doses, also locally; has astonishing power in superficial and non-vesicular forms, also when erysipelas attacks the brain, and the phlegmonous type (P.); for similar indications as noted under Aconite, also when adynamia; if much fever, combine it with digitalis or aconite; when much depression, give it with quinine; gr. ¼ of the extract with gr. ij of quinine sulph. every 3 or 4 hours (B.); the extract with glycerin, equal parts, spread thickly over the surface (Quain); should be used both internally and externally and may be combined with aconite (R.). *Iron, Tincture of the Chloride*, the nearest to a specific yet discovered; the remedy of most service, any man being decidedly to blame who neglects its use; requires decided doses, gtt. [illegible] every 4 hours (Da Costa); treatment by it very general, but questionable (B.); should be given with shorter intervals than 4 hours (R.); is very successful in this disease (P.); ten-drops doses every hour, or ℳxl every 4 hours (Quain). Is also used locally with much success, being painted over the surface in full strength. *Quinine*, may be given with the iron; also alone if thoracic complications, wherein iron might be contra-indicated (Da Costa); if pulse soft and tremulous, or very rapid, low muttering delirium (D.); a combination of quinine and tincture of the chloride of iron offers special advantages (Wa.); in the more severe cases to sustain the vital powers, and prevent cerebral embolism; but large doses, gr. v–xx every 4 hours, are alone of any use (B.). *Ammonium Carbonate*, when feeble circulation, cyanosis and delirium; also when any signs of embolism appear (B); highly useful in debilitated subjects (Wa.); after free purgation the continued use of this salt is all that is needed in most cases (Sir. T. Watson). *Potassium Iodide*, with agents to secure free action of the bowels, skin and kidneys, the only efficient treatment in erysipelas ambulans, in which iron and quinine are useless (Da C.). *Antipyrin*, is particularly efficient when hyerpyrexia (Ernst). *Rhus Tox.*, a very useful remedy in the vesicular form (P.). *Tartar Emetic*, in doses of gr. $\frac{1}{16}$ frequently repeated, renders incontestable service (B.). *Calomel and Jalap*, as purgative at onset, followed in 4 or 5 hours by magnesium sulphate, ℥ss (Da C.). *Chloral*, is an admirable adjunct to give sleep at night (Da C.). *Turpentine*, as a stimulant in traumatic erysipelas, more generally serviceable than alcohol (B.).

LOCAL APPLICATIONS. *Silver Nitrate*, by Higginbotham's method in traumatic form; gr. lxxx of the brittle stick dissolved in ʒiv of water and painted 2 or 3 times over inflamed surface and beyond, after careful washing and drying (R.); no agent more useful in subduing external inflammation. *Iodine*, painted over affected and neighboring surface, to prevent spreading (R.). *Iodized Collodion*, very successful as a local application, see formula below. *Collodion*, a thick coating relieves (B.). *Digitalis*, an infusion locally is of much service applied as a lotion (R.). *Sulphurous Acid*, and glycerin, equal parts, or a solution of Sodium Bisulphite (Dewar). *Zinc, Benzoated*, as ointment, or the unguentum zinci oxidi, anything to exclude the air, and whichever one is most agreeable to the patient (Da C.). *Bismuth*, the ointment of the oleate, a very certain application to allay itching and burning, lessen pain, etc. (Shoemaker). *Oil*, by inunction, is very grateful in simple erysipelas (B.). *Oil of Turpentine*, painted over surface is said to be remarkably efficient. *Vaseline*, lard, or mercurial ointment, diluted, ʒj to ℥j of vaseline; the simplest applications are the best (B.). *Carbolic Acid*, one part, with 8 to 14 parts of oleic acid, locally by inunction for 3 to 4 minutes every ¼ hour, all around the edge of the diseased part until it ceases to spread (Jacobi). *Cotton Wool*, sprinkled with flour or a mixture of starch and zinc oxide, is a good application (B.). *Earth*, clean yellow clay, free from grit or sand, and powdered, applied directly to the skin in the form of a smooth paste, made by mixing it with water, the best of all applications, having properties of antiseptic, antiphlogistic, antipyretic and antimorbific nature (Hewson).

Tracheotomy, promptly if œdema of glottis occurs, the operation giving time for inflammation to subside (Da C.). *Incisions*, may be necessary in traumatic erysipelas, when limb is greatly swollen and inflamed; also in the phlegmonous variety (Da C.). *Diet*, a milk-diet is generally suitable; should be light but nutritious (R.); feed the patient well (Da Costa). [Compare PHLEGMON.]

Prescriptions.

Quininæ Sulphatis, . . . ʒ ss.
Ext. Belladonnæ, ... gr. ijss.
t. pil. no. xx. Sig.—Two pills every 4
rs, where much depression. (B.)

Quininæ Sulphatis, . . . ʒ j.
Ac. Sulphurici Dil., q. s.
Aquæ, ... ℥ ij.
Tincturæ Ferri Chlor., . . ʒ ss.
Spt. Chloroformi, ... ʒ vj.
Glycerini, ... q. s. *ad* ℥ iv.
I. Sig.—A teasp. in water every two
rs. (*Loomis.*)

Tinct. Ferri Chloridi, . . . ℥ j.
Syrupi Tolutani, ... ℥ j.
Liq. Potassii Citratis, . . ℥ iv.
M. Sig.—Teasp. to tablesp. according
ge every 3 hours. ʒ j = ♏x, ʒ ij =
x, ℥ ss = ♏xl. (*Anderson.*)

Tinct. Ferri Chlor., . . . ʒ ij–iij.
Glycerini, Aquæ, . . . aa ℥ j.
M. Sig.—Teasp. every 2 hours for chil-
n. (*Gibney.*)

For Local Use.

℞. Ætheris,
Alcoholis, ... aa ℥ v.
Pyroxylini, ... ʒ j.
Solve, et adde—
Ammonii Iod., ... gr. xl.
Cadmii Iod.,
Cadmii Brom., ... aa gr. xx.
M. Sig.—For local use with a camel's-hair pencil. If the cadmium salts are not to be had use ʒ j Amm. Iod., and gr. xx Pot. or Amm. Bromide. (*Humphreys.*)

℞. Plumbi Acetatis,
Ammonii Carb., . . . aa ʒ j.
Aquæ Rosæ, ... ℥ viij.
Ft. lotio. Sig.—Apply on lint, to allay irritation. (*Peart.*)

℞. Acid. Carbol.,
Alcoholis, ... aa ʒ ij.
Ol. Terebinth., ... ʒ iv.
Tinct. Iodi, ... ʒ ij.
Glycerini, ... ʒ x.
M. Sig.—Brush over surface every 2 hours, and cover with a thin layer of wadding.

Erythema.

Belladonna, useful in cases resisting ordinary treatment (B.). *Quinine*, the st valued remedy in erythema nodosum (B.). *Rhus Toxicodendron*, a valu-le remedy (P.). *Zinc Sulphate*, as lotion, with alum and glycerin. See ZEMA, for formula; or the *Acetate*, in ointment, see below. *Bismuth*, dusted er erythema about genitals of infants soothes pain and promotes healing (B.). *neral Acids*, nitric and nitro-hydrochloric, have been advantageously used en from imperfect digestion (B.). *Dusting Powders*, of starch, lycopodium buckwheat flour are very useful.

Prescriptions.

Plumbi Carbonatis,
Bismuthi Subnit., . . . aa ʒ j.
Sodii Bicarbonat., ... ʒ ss.
Ung. Zinci Oxidi Benz., . ℥ ij.
t. unguentum. Sig.—Local use.

℞. Zinci Acetatis, ... gr. ij.
Aquæ Rosæ, ... ʒ j.
Ung. Aquæ Rosæ, . . . ℥ j.
M. Sig.—Ointment.

Exhaustion.

rnica, a few drops internally for aching of the muscles (R.); in nerve prostion with general aching from over-fatigue (P.). *Phosphorus*, for physical or ntal exhaustion; also in depression from over-work (R.). *Calcium Phosphate*, nbined with *Calcium Carbonate* and *Phosphate of Iron*, gr. j of each for a e (R.). *Potassium Bromide*, when insomnia, bad dreams and irritability). *Opium*, gtt. j of laudanum with 2 or 3 of the tinctura nucis vomicæ, 3 or mes a day, for symptoms of exhaustion with headaches, flushing and dys-sia (R.). *Ammonia*, internally; its influence is but brief (R.). *Coffee* or *Tea*, hot or cold climates (R.). *Castor*, is serviceable, but seldom used (P.). *Musk*, benefits all forms of nerve-exhaustion (P.). *Cimicifuga*, for headache from over-study or excessive fatigue (R.). *Alcohol*, of value in all conditions of fatigue (P.). *Coca*, lessens the sense of fatigue under exertion, relieves thirst, and obviates the effects of a too rarefied atmosphere; is suitable for weakly subjects easily fatigued, and to convalescents (P.). *Cocaine*, has been used successfully in exhaustion from sunstroke, loss of blood, and diarrhœa (P.). *Wet Sheet*, dripping, cold, as a restorative, and to prevent aching of muscles (R.). *Sea Bathing*, is also valuable (R.). *Habits*, change of occupation better than absolute rest. [Compare ADYNAMIA, CONVALESCENCE, INSOMNIA, MYALGIA.]

Exophthalmos.

Belladonna, ♏v of tincture hourly, of great service (R.); results recorded from its use are very remarkable, but Digitalis will usually answer better (P.). *Duboisine*, gr. $\frac{1}{120}$ of the sulphate 2 or 3 times daily, has produced remarkable results in one case (Hunt). *Opium*, may be of use in some cases (P.). *Digitalis*, to raise the arterial tension and slow the heart, decidedly ameliorative in young subjects (B.). To tranquillize the heart is the main indication. *Iron*, with Digitalis, seems to do more good than any other medicines (Da Costa). *Chalybeate Waters*, are beneficial (B.). *Convallaria*, ameliorates the painful palpitation (Wa.). *Galvanism*, of the cervical sympathetic and pneumogastric, and eyes and thyroid gland, is decidedly curative in uncomplicated cases (B.).

Exostosis.

Potassium Iodide, may promote absorption when recent; also friction with ointment of *Mercury* or *Iodine* (D.). *Aconite*, was used by Störck (P.). *Mercury*, a moderate course of mercurials may be effectual, when exostoses due to a blow or from syphilis (D.). *Exostoses* of clavicles in children almost always disappear themselves (D.). Excision if required (MacCormac).

Eye-Diseases.

Belladonna, locally and internally in iritis, conjunctivitis and other inflammations. *Atropine*, in iritis, locally; hypodermically, in glaucoma (R.); the best application in inflammatory conditions generally. *Euphrasia*, had an extended reputation in Germany, is a mild astringent, and of service in catarrhal conjunctivitis (P.). *Pulsatilla*, as lotion in inflammations and ophthalmic cases (P.). *Santonin*, gives good results in inflammatory and atrophic conditions of the retina and optic nerve, and the stage of effusion of many other inflammations (Wa.) *Ruta*, minim doses, night and morning, in dimness of vision depending on functional amaurotic condition, produces good results (P.). *Physostigma*, topically, to contract pupils; to reduce excessive atropinization. Stimulates the third nerve (P.). *Strychnine*, hypodermically in muscular asthenopia, amblyopia, amaurosis, and in progressive nerve-atrophy not dependent on intercranial diseases (R.). Increases the sensibility of the eye, the field of vision becoming extended, and the vision more acute (Br.). *Ergot*, useful in many eye affections, especially disturbances of accommodation, acute and chronic inflammations, and the blepharitis and pustular conjunctivitis of children (Wa.). Is myotic. *Pilocarpus*, is used with great benefit in many eye-affections, particularly amblyopia from alcohol and tobacco, detachment of the retina, chronic iritis, keratitis, hemorrhage into the vitreous, glaucoma, muscæ, atrophic choroiditis, hemorrhages of the retina, white atrophy of the optic nerves, and inflammatory affections with effusion and exudation to promote resolution and absorption (Wecker). *Cocaine*, as a local anæsthetic in ophthalmic surgery, a 4 per cent. solution, by instillation, sometimes injection required, as into the muscles for squint operation. Is mydriatic, and in rare cases panophthalmitis has resulted after operations under cocaine (R.). *Chloroform*, vapor, close to a photophobic eye, relieves (R.). *Oleate of Mercury* *and Morphine*, outside the eye in palpebral conjunctivitis, and stye; also in syphilitic iritis (R.). *Silver Nitrate*, *Copper* and *Zinc Salts*, are much used (B.). [See CONJUNCTIVITIS, etc. Compare MYDRIATICS, MYOTICS, pages 28, 29; also in this section the titles AMAUROSIS, ASTHENOPIA, CATARACT, CONJUNCTIVITIS, CORNEAL OPACITIES, GLAUCOMA, IRITIS, KERATITIS, MYOPIA, OPHTHALMIA, PHOTOPHOBIA, RETINA, STRABISMUS, etc.]

Eyelids.

Calomel, locally, or brown citrine ointment, as application in many diseases (B.). *Mercury* and *Morphine*, the 20 per cent. ointment with lard, outside lid, for stye (R.). *Pulsatilla*, internally, and externally as wash, in ophthalmic cases and inflammations; the so-called "stye" may often be aborted by this treatment (P.). *Cadmium*, much esteemed as collyrium, gr. ij of sulphate to ℥j aquæ rosæ (R.). *Zinc* and *Copper Sulphates*, are esteemed applications (B.) [See CONJUNCTIVITIS for formulæ.] *Ergot*, an aqueous infusion, as a collyrium, in ptosis and paralysis of the eyelids (Wa.). *Tannin*, a strong solution (1 to 3 aquæ), locally; or a weaker solution (1 to 20, 30 or 50 aquæ), is much employed. Also used in pomade, or as fine powder (Wa.). *Veratrine*, in solution, brushed over lids once daily in painful spasmodic contraction of the orbicularis (Wa.). *Ammonium Chloride*, in solution as lotion, for ecchymosis of eyelids, vulgarly known as "black eye." [See ECCHYMOSIS, BLEPHARITIS, CONJUNCTIVITIS, PTOSIS, ECTROPIUM, etc.]

Face.

Amyl Nitrite, ♏$_{\frac{1}{10}}$ to ⅙, in 30 times its volume of spirits, for flushing of face, or sensation of flushing, with cold feet and hands, and great prostration, chiefly in women at change of life (R.). *Curare*, effective in facial spasm, when other remedies failed (P.). *Blisters*, behind the ear, in facial palsy, followed by warm covering to part (H.). *Strychnine*, has improved some cases of facial palsy (P.). [Compare NEURALGIA, ODONTALGIA, TIC-DOULOUREUX.]

False Pains.

Tartar Emetic, combined with small doses of opium, together with external fomentations, where evidence of congestion (L.). *Opiates*, to allay uterine irritation, after rectifying any derangement of bowels (L.). *Opium*, is valuable, having specific action on uterine muscular fibres, relaxing some, stimulating others (Wa.)

Feet.

Arsenic, swelled feet of old or weak persons (R.); œdema of feet and ankles in the old, from feebleness of the heart (B.). *Lead*, as ointment of equal parts of emplastrum plumbi and linseed oil spread on linen, and wrapped round the feet when they sweat—to be renewed every third day for nine days (R.). *Potassium Permanganate*, gr. j–℥j, as wash, will remove fetor of feet (B.); temporarily discolors the skin. *Boracic Acid*, in strong solution, is used with good results. *Chloral*, 1 in 50 of water, as bath, efficient. *Sodium Bicarbonate*, a solution freely applied will remove fetor (B.). *Belladonna*, will check fetid secretions (R.). *Salicylic Acid*, in solution with borax, the most agreeable and efficient deodorant for fetid perspirations (B.). ʒjss–iij with ℥iij of dried alum, in powder, applied freely to foot after washing and drying. Acid. salicylic. 3, magnesium silicate 87, is the composition of the powder used in the German army for sweating of the feet. *Ice*, to the spine, or heat and cold alternately, to equalize the circulation, has been strongly advocated (Wa.). *Stockings*, should be changed every day, and if dipped in a strong solution of boracic acid and dried will effectually check fetid perspirations. *Cold Foot-Bath*, and drying with friction, for cold feet (R.).

Prescriptions.

℞. Ac. Salicylici, ... gr. xv.
Amyli, ... gr. cl.
Talci, ... ℥iij.
M. et trit. Sig—Locally for sweating feet.
(*Kohnhorn.*)

℞. Ac. Borici (pulv.), ... ʒjss.
Vaselini, ... ℥j.
M. Sig.—Ointment for bromidrosis.
(*Championnière.*)

Fever.

[See also the titles of the various fevers, in their respective alphabetical order.]

Aconite, has the highest value in the eruptive fevers, also in all hyperpyrexia (B.). Always indicated in early stage of simple inflammatory fevers, pneumonia, and in most acute congestions (P.). Has marvellous power over sthenic fevers. Thermometer should go hand in hand with Aconite (R.). *Veratrum Viride*, possesses considerable power as an antipyretic; useful in rheumatism, pneumonia (P.); in delirium ferox of fevers it is of value (B.). Strongly recommended in both sthenic and asthenic fevers (R.). *Belladonna*, in the eruptive fevers, especially scarlatina (B.). In typhus, with delirium, insomnia, painful sensitiveness to light and sound. In all hyperæmic states of brain and spinal cord (P.). Is prophylactic often against scarlet fever (P., Pf.). In delirium also excellent in typhus (R.). *Gelsemium*, in remittent and typho-malarial, of real benefit. Is antipyretic (B.). In bilious remittent, of value (Pf.). *Arsenic*, in prostrating acute fevers to strengthen pulse and invigorate patient. Except quinine, no drug subdues intermittents so well (R.). In malarial, especially typho-malarial, it is of great value (B.). *Cinchona*. Quinine in the eruptive, and all malarial, remittent, and intermittent; as apyretic, less effective and more dangerous than cold baths. Useless in typhus and typhoid, except for hyperpyrexia (B.). Is anti-miasmatic, antiseptic, and antiphlogistic; of great value in intermittent, septicæmic, and hectic fevers (P.). Large doses at night to reduce temperature in typhoid and other fevers strongly urged in Germany. Cinchonine best as prophylactic against ague (R.). *Antipyrine*, the type and the best of the new series of synthetical antipyretics, which includes kairine, chinoline, thallin, etc. (see pp. 56, 105, 179); is antipyretic and diaphoretic, moderates the intensity of the febrile movement, and is especially indicated in self-limited diseases with persistent hyperpyrexia, especially pneumonia, typhoid, etc. *Kairine*, is an efficient antipyretic, but profusely diaphoretic, also a cardiac and nerve depressant of great power, and highly dangerous in pneumonia, and other fevers where the heart is weak. It often produces nausea and vomiting with headache and tinnitus aurium (P.). *Resorcin*, has been given in acute rheumatism, typhoid, typhus, pneumonia, erysipelas, etc., as an antipyretic; like Kairine, however, its action in lowering temperature is transient as compared with quinine or salicylic acid (P.); may be used hypodermically as it is not irritant (B.). *Salicylic Acid*, or salicylate of sodium, nearly equal to quinine as antipyretic. Very useful in all forms with high temperature and in intermittents. Especially in septicæmia, pyæmia, erysipelas, and surgical fevers (B., R.). *Digitalis*, the German antipyretic. Very useful in scarlet fever, rheumatic, and pneumonia (B.); especially in typhoid (R.). *Cimicifuga*, as substitute for digitalis, but less effective; good in hectic (B.). *Hydrastine*, intermittents, typhoid with copious sweats (P.). *Arnica*, is antipyretic, full doses in sthenic cases, small (♏v of tincture) in asthenic. Large and small doses produce different results (B.). In rheumatic and typhoid is highly extolled (P.). *Camphor*, subdues reflex excitability; praised as stimulant in adynamic fevers (P.). In adynamic fevers and where there is delirium (R.). *Mercury*, large doses of calomel, the German "specific" treatment of typhoid (B.). Small doses in typhoid at commencement; has marked effect on tonsils in scarlatina (R.). *Rhus Tox.*, in rheumatic fever after aconite, and in scarlatina with typhoid symptoms, is invaluable (P.). *Opium*, much less used than formerly. Useful in delirium, and with quinine in remittents and intermittents (B.). For fevers characterized by prostration, insomnia and delirium, noisy or muttering, with picking of bed-clothes and twitching of the muscles; in such cases opium, judiciously given, may save an almost hopeless case (R.). Morphine, hypodermically, the best form in febrile diseases, being less disturbing to the stomach and digestive power (P.). *Turpentine*, in typhoid, puerperal, and yellow, as a stimulant to vaso-motor nervous system (♏x–ʒss) (B.); as enema (♏30–60 in starch mucilage with ♏x of liq. opii if pain) invaluable when in typhoid hemorrhage occurs with tympanitis (P., R.). *Tartar Emetic*, minute doses (gr. $\frac{1}{16}$) frequently repeated, and with opium, are of great value in many acute febrile diseases (B.); as a diaphoretic; in ague; in large doses to abort specific fevers (R.). *Muriatic Acid*, very useful in all forms, especially in typhoid and the exanthemata; relieving dryness of the mouth and fauces, increases digestion, and restrains the diarrhœa (B.). *Acid Drinks*, such as raspberry vinegar, citric acid, etc., very grateful and useful (R., B.); two sliced limes or lemons, with ℥ij of sugar, in Oj of boiling water, cooled and strained, make an agreeable refrigerant beverage (Wa.). *Baptisia*, useful in common continued fever, or in the first stage of typhoid; drop doses of a fresh tincture every hour. *Eucalyptus*, has given varied results in malarial fevers, some observers praising it very highly (P.). *Valerian*, has done much good in fevers of a nervous character (P.). *Sumbul*, is used in Russia for low fevers of a typhoid type (P.). *Cocculus*, for tympanitis of typhoid (P.). *Ammonium Acetate*, as a diaphoretic, and in simple forms, as catarrhal; the *Carbonate* in scarlet fever and measles (R.). *Purgation*, by castor oil, sulphate of magnesium, etc., before exhaustion (R.). *Mustard Bath*, on recession of rash in eruptive fevers (R.). *Aliment*, milk and beef-tea alternately, every 3 hours. Milk only, in fevers and inflammations of the digestive tract (B.). *Alcohol*, in low conditions is useful when causes improvement in symptoms, which may become worse (B., R.). Coffee better than alcohol (P.). *Water*, is a valuable adjunct to remedies in the treatment of fevers. Warm baths, the wet pack, hot and cold compresses, fomentations, moist inhalations, etc., have great value [see various fever titles]: a most important agent. Cold baths or cold wet pack to reduce temperature (B.); cold affusion, baths, packing, ice, and ice-bag; hot affusion and sponging, all of great value in every form (R.).

Prescriptions.

℞. Ext. Aconiti Fl., ... ♏xvj.
Spt. Etheris Nitros., . . . ʒij.
Glycerini, ... q. s. *ad* ℥ij.
M. Sig.—A teasp. every hour to an adult, as a febrifuge.

℞. Antipyrini, ... gr. xlv.
Aquæ Cinnam., ... ℥ij.
M. Sig.—A teasp. every 2 hours for children, to control pyrexia.

Fever, Simple.

Aconite, in small repeated doses, the best remedy for febricula, etc. (B.); in ordinary febrile conditions, if given early, will abate fever and induce free perspiration; may be administered in conjunction with any other remedy indicated (R.). *Veratrum Viride*, in small doses, as antipyretic (P., R.). *Hyoscyamus* or *Belladonna*, very useful in febricula, especially for head symptoms and constipation (P.). *Gelsemium*, with remittent or bilious symptoms (P., B.). *Arsenic*, if typho-malarial symptoms (B.). *Antipyrine*, in hourly doses of gr. iv or less, in the simple continued fever of children, as antipyretic. Even infants bear it well (Penzoldt). *Hydrochloric Acid*, in the continued fever of childhood, has a beneficial influence (West). *Valerian*, when nervous excitability (P.). *Lemon-juice*, as "lemonade," or with bicarbonate of potass., as mild diaphoretic and diuretic (P.). *Pomegranate-juice* is very grateful if mixed with sugar or honey (P.). *Bromides*, gr. ss–j every quarter-hour are excellent for the febrile disturbances of children (A. A. Smith). *Baths*, warm, in simple fevers of children (R.). *Aliment*, milk and beef-tea alternately every three hours, the most useful (B.).

Prescriptions.

℞. Ac. Hydrochlor. Dil., . . ʒss.
Spt. Ætheris Co., ... ʒjss.
Syr. Rosæ, ... ℥ss.
Aquæ Camph., ... *ad* ℥iv.
M. Sig.—Teasp. to tablesp., according to age, every 6 hours.
(Modified from *West*.)

℞. Potassii Acetatis, ... ʒij.
Spi. Ætheris Nitrosi, . . . ʒiv.
Syr. Simplicis, ... ℥j.
Liq. Ammonii Acetatis, . ℥ij.
Aquæ Camphoræ, . . . *ad* ℥viij.
M. Sig.—Teasp. to tablesp. doses, cording to age. Diaphoretic and febrile.

Fistula.

Piper Nigrum, the confection, as a gentle stimulant in anal fistula (P. *Iodine*, by injection, sometimes curative, but generally fails (Wa.). *Sanguinaria* as injection, has cured (P.). *Capsicum*, the weak infusion, a useful stimulant in fistulous ulcerations (P.). *Surgical.* Division of sphincter in anal fistula, by knife or ligature, the best treatment (D.). In fistula lachrymalis, dilatation of passage by probing the canaliculus, or slitting the canaliculus up (D.). In vesico-vaginal, or recto-vaginal, surgical methods best. *Diet* should be nourishing and digestible; fresh air and general hygienic conditions are necessary (R.).

Flatulence.

Nux Vomica will remove flatulence and intestinal indigestion (B.); when constipation, heart-burn, weight on head (R.). *Charcoal*, gr. v or x, soon after or just before meals (R.); mixed with bismuth (R.). *Chloroform*, pure, in drop doses, benefits (R.). *Carbolic Acid*, when no acidity present (R.). *Turpentine*, gtt. iij–v on sugar, will quickly relieve (B.). *Asafœtida* or *Valerian*, quickly relieves the flatulence of hypochondriasis (B., P.). Asaf. ʒj of tinct. to O½ water, give ʒj; useful for children (R.). *Sodium Sulpho-carbolate*, gr. xxx after eating, will be found very serviceable (R.). *Phosphoric Acid*, dilute, is often promptly alleviative. *Anise*, the oil, also Ether, or any other member of the Carminative group (see page 37), will promote the expulsion of gas from the stomach and intestines. *Mercury*, when with clayey stools (R.). *Calumba*, an effective remedy for flatulent disposition is an infusion of ℥ss each of calumba and ginger, ʒj of senna, hot water Oj, a wineglassful ter die (B., P.). *Potassium Permang.*, in flatulence attendant on obesity (B.). *Physostigma*, flatulence of women at climacteric (B.). *Sulphurous Acid*, in 5 to 10 minim doses, when due to fermentation (R.). *Diet.* Abstain from sugar, starchy food and tea—especially sugar; eat little, slowly and regularly; as a general rule abstain from alcoholic drinks and vegetables, especially cabbage. *Pepsin* [or *Ingluvin*] after meals, to promote digestion (R.). [Compare Colic, Dyspepsia.]

Prescriptions.

℞. Tinct. Nucis Vomicæ,
Tinct. Physostigmatis,
Tinct. Belladonnæ, . . . āā ʒj.
M. Sig.—Fifteen drops twice daily in a little water.

℞. Tinct. Illicii Anisati,
Tinct. Gentianæ,
Tinct. Nucis Vomicæ, . āā ʒj.
Chloroformi, ... ♏xv–xxx.
M. Sig.—8 to 10 drops in a winegl. of water, before meals.

℞. Gummi Camphoræ,
Pulv. Zingiberis,
Pulv. Capsici, ... āā gr. j.
Ft. pil. no. vj. Sig.—One pill as required for gastric and intestinal flatulence.

℞. Bismuthi Salicyl., ... ʒiv.
Magnes. Calcinat., ... ʒiv.
Pulv. Carb. Ligni, ... ʒvj.
Olei Anisi, ... ʒij.
Ft. pulv. Sig.—A teaspoonful bef each meal. (*Huchard.*)

Flushing-heats.

ux Vomica, ♏ij of the tinct. with minim doses of laudanum in hysterical
hings of the middle-aged, with flatulence, weight on head and perspirations
. *Nitrate of Amyl*, ♏ $\frac{1}{10}$ to $\frac{1}{8}$ in thirty times its volume of rectified spirits.
ctive for flushing of face, or sensation of flushing, followed by coldness,
cold feet and hands and great prostration, occurring at climacteric chiefly
. *Potassium Bromide*, at climacteric, with mental depression (R.). *Zinc
erianate*, or *Valerian*, flushings at the climacteric (R.). *Eucalyptol*, for
flushings, palpitations and flatulence incident to the change of life (R.).

Foreign Bodies.

the Eye,—Remove by bathing, or wiping towards the lower inner corner
a soft, moistened handkerchief, or a bent bristle, the two ends being held
he fingers. Use tepid solution of vinegar (ʒss–℥j) for removing lime, tepid
er for powder. Then apply a weak zinc or alum collyrium, or instil a
tion of Atropine, gr. ij to the ℥, or Cocaine, 4 per cent. *In the Ear*,—
mine carefully with speculum before removal; first syringe with warm
er, or a drop of sweet oil to drive out insects, before using forceps; apply
al parts of laudanum and olive oil, a few drops on cotton, if much pain.
the Nose,—A current of tepid salt water, forced up one nostril, may force
n the body through the other, if the mouth be held open. *In the Larynx
Pharynx*,—if water can be swallowed, the obstruction is in the trachea.
er push a body down. Remove by curved forceps or blunt hook. If
sed into the stomach use solid diet to imbed the article. If all fail and the
e be urgent, resort to catheterism or tracheotomy. *In the Flesh*,—remove
nce by forceps, or sponge and water.

Fractures and Dislocations.

rnica, is excellent to neutralize the ill effects of mechanical injuries, ♏v–x
wineglassful of water every 2 or 3 hours. When used after amputations,
rtainly has the power of promoting the rapid union of the surfaces. The
sion is better than an alcoholic preparation for external use (P.). *Aconite*,
kly and repeatedly if feverish symptoms ensue (P.). *Iodine*, int. and
ions, occasionally useful in ununited fractures (Wa.). *Calcium Phosphate*,
notes formation of callus (Wa.). *Opium*, useless in surgical fever, and
do harm (Cl.); for nervousness or muscular spasms after dressing, gr. ¼
norphine hypodermically as anodyne (Ag.). *Benzoin*, the tincture on lint,
dressing for compound fractures and other severe injuries, leads to rapid
satisfactory healing (Bryant). *Carbolic Acid*, 1 to 20 or 1 to 40 solutions,
rrigation and dressings in compound fractures, obviates pyæmia and most
he other preventable causes of death (P.). *Leadwater and Laudanum*, on
or a *Calendula* lotion to the part, after reduction of the injury, with mor-
e hypodermically and perfect quiescence. *Diet*, should be very simple
a week or ten days. [Compare WOUNDS.]

Freckles.

odine, the tincture or glycerite, locally (B.). *Liquor Potassæ*, ʒj to ℥ij
æ Rosæ, as a lotion (Todd). *Benzoin*, the compound tincture with water,
osmetic to remove freckles (P.). *Sodium Borate*, a saturated solution of
ax is a safe and often efficient lotion to remove freckles (B.). *Lime-water*
l olive oil, equal parts, with a little liq. ammoniæ, as liniment (Wa.). *Po-
sium Carbonate*, makes a good lotion for freckles, sunburn and tan (B.).
rcury, the bichloride, with alcohol and glycerin, as a lotion, has been found
ctive. Donovan's solution, ♏lxxx to ℥viij of Water, and ℥j every three
urs, has been found highly successful (Wa.).

Prescriptions.

℞. Potassii Carbonatis, . . . ʒiij.
Sodii Chloridi, ... ℥ij.
Aquæ Aurantii Flor., . . ℥ij.
Aquæ Rosæ, ... ℥viij.
M. Sig.—Face-wash.
(B.)

℞. Hydrarg. Chlor. Corr., . . gr. vj.
Ac. Hydrochlor. Dil., . . ʒj.
Alcoholis, Aq. Rosæ, . āā ℥ij.
Glycerini, ℥j, Aquæ, . *ad* ℥viij.
M. Sig.—Apply at night, and wash in the morning.

Gangrene.

Salicylic Acid, pure, in powder locally, to destroy fetor and change the character of the morbid action (B.). *Carbolic Acid*, acts in the same way (B.); a 1 per cent. solution as lotion in gangrenous ulcers (Wa.). *Sodium Sulphite*, in solution, 1 to 5 or 10 of water, as lotion or applied on compresses to destroy odor, soothe pain and restore healthy action (Wa.). *Ammonium Chloride*, in solution as bath and fomentations, very successful in one case of senile gangrene (Wa.). *Cinchona*, or better, quinine, or the hydrochlorate, often proved of value (P.); generally decoction of cinchona best (Wa.). *Turpentine*, locally, after removal of gangrenous part, a most efficient application (B.); by stomach and inhalation from hot water in gangrene of lungs; the oil locally in dry and chronic gangrene (P.). *Sanguinaria*, has been recommended (P.). *Oxygen*, as gaseous bath in senile gangrene (R.). *Charcoal*, as poultice, value doubtful (R.). *Citric Acid*, lemon-juice dropped into wound, which is then covered with lint steeped in a solution of chlorine. Very effective for hospital gangrene, in Parisian hospitals [Lancet, October, 1879]. *Perchloride of Iron*, locally, is considered superior to the mineral acids (Wa.). *Nitric Acid*, strong, applied carefully until the ulcer is converted into a firm, dry mass (Wa.); is probably the best escharotic, next to bromine, for gangrenous destruction (B.). *Bromine*, is the best escharotic for hospital gangrene (B.). *Chromic Acid*, is a very efficient caustic, penetrating deeply with but little pain (B.). *Opium*, to soothe the pain, and diminish restlessness and irritability (Wa.).

Gastralgia and Gastrodynia.

Opium, in some form necessary to relieve the pain in severe cases (Da Costa). *Morphine*, is of great value (P.); subcutaneously in epigastrium very efficient, or in small doses with bismuth and milk before meals (R.). *Belladonna*, is useful in painful affections of the stomach (R.). *Atropine*, often relieves promptly, and is excellent in neuralgic pain of the abdominal viscera (P.). *Nux Vomica*, an excellent stomachic, gtt. v–x of tincture before meals (B); gtt. j–ij every 2 hours in many forms of gastric derangement (R.). *Strychnine*, hypodermically for gastralgia and gastrodynia (R.); in very small doses, gr. $\frac{1}{100}$–$\frac{1}{32}$, two or three times daily, a very successful remedy (P.). *Arsenic*, sometimes dissipates the pain surprisingly (B.); a drop of liquor arsenicalis before food in irritative dyspepsia and gastralgia with heartburn (R.). *Bismuth*, when gastralgia due to irritation of mucous membrane, acts well alone, but is most efficient when given with aromatic powder and a little morphine (R.); or a combination of bismuth and arsenic in more chronic cases (B.); subcarbonate is especially adapted to gastralgia with laborious digestion and putrid or acid eructations (Wa.) *Manganese*, the black oxide in gastrodynia and pyrosis (R.). *Zinc Oxide*, an excellent remedy when gastralgia after food, gr. v–x with aromatic powder and morphine, before meals (B.). *Silver Nitrate*, in solution to check the pain of many stomachal disorders (R.); a pill of gr. ss, with extr. hyoscyami gr. ij–iv (Wa.) *Hydrocyanic Acid*, often cures rapidly when gastralgia from nervous derangement (B.); may check vomiting as well as relieve pain (R.); cherry-laurel water a useful form (P.). *Nitro-hydrochloric Acid*, gtt. ij–iij of the dilute acid, is serviceable (Da Costa). *Æther*, a few drops of sulphuric ether or the compound spirit ♏x–xx, often

uickly (B.). *Chloroform*, ♏ij–v on sugar, often relieves (B.). *Chlo-*
times relieves pain in gastralgia (R.). *Pulsatilla*, is efficient in many
ainful dyspepsia, with coated tongue, headache and nervous depres-
Pepsin, when gastrodynia from indigestion (P.). *Creasote*, checks
food (R.). *Alum*, often affords relief (B.). *Ergot*, of value in vis-
ralgiæ (P.). *Alkalies*, for pain in stomach, liquor potassæ generally
(R.). *Quinine*, in cases showing periodicity, and those of neuralgic
Sodium Salicylate, for gastralgia with fermentation (R.). *Nitro-*
llays the pain speedily (B.). *Carbonic Acid Water*, in painful and irri-
ditions; may be mixed with milk (R.). *Milk-cure*, very efficacious
te cases (B.). *Galvanism* of the pneumogastric, and locally to the
lf (B.). *Aquapuncture* has given extraordinary relief (B.). *Diet* is of
st importance. Food should be easily digestible, varied and plainly
Sedentary livers should refrain from much animal food. Meals
regular and frequent, eating little at a time, and that very slowly.
beverages do harm as a rule, but may benefit particular cases. Eat-
l be done in as agreeable a frame of mind as possible, and the patient
st for a time after a meal. [Compare ACIDITY, DYSPEPSIA, NEU-

Prescriptions.

inæ Sulph., ... gr. j.
rbolici, ... ʒss.
enth. Pip., ... *ad* ℥iv.
—Teasp. thrice daily.
(*Da Costa.*)

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inæ Sulph., ... gr. j.
Sulph., ... ℥ss.
Destill., ... ℥j.
—3 to 5 drops two or three
(B.)

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thi Subnit.,
sii Carb., ... aa gr. xvj.
ydrocy. Dil., ... ♏x.
. . . . ℥iv.
—Dessertsp. for a child of 3
ulent gastrodynia and gastralgia.

℞. Ac. Hydrocy. Dil., ... ʒij.
Aq. Laurocerasi, ... *ad* ℥iv.
M. Sig.—Teasp. every 4 hours.

℞. Bismuthi Subnit., ... ʒij.
Aq. Hydrocy. Dil., ... ʒss.
Mucil. Acaciæ,
Aq. Menth. Pip., ... aa ℥ij.
M. Sig.—Tablesp. thrice daily.

℞. Pepsini, ... ʒj.
Ac. Hydrochlor. Dil., . . ʒss.
Glycerini, ... ℥jss.
Aq. Cinnam., ... ℥ijss.
M. et filtra. Sig.—Tablespoonful doses
for slow and feeble digestion.

Gastric Dilatation.

Acid, internally to allay fermentation, with an occasional washing
omach pump (Da Costa). *Strychnine*, hypodermically or by the
Nux Vomica, the best remedy, conjointly with washing of the sto-
strict diet (Da C.). *Bismuth*, with magnesia or soda, or lime-water
, for the acidity, which is one of the most distressing symptoms (Fen-
iet, should be free from all starch and sugar, and from vegetables of
(Fenwick). Milk not advisable, as much fluid will further dilate the
lids better, as small quantities of dry, stale bread, or gluten bread,
done meat (Da Costa).

Gastritis, Acute.

, calomel in broken doses, with ice, frequently swallowed, for the
form, which is occasionally seen and cannot be distinguished from
irritant poisons (Da Costa). *Bismuth*, subnitrate or subcarbonate
ses after more acute symptoms have abated (Da C.). *Morphine*,

hypodermically for pain (B.). *Ice*, internally and externally gives great relief (R.). *Aliment* should be given per rectum; no food, except milk and lime-water, being admitted to the stomach for some time (Da C.) *Antidotes*, in cases of irritant poisoning, as alkalies to neutralize acids, dialyzed iron or the hydrated sesquioxide for arsenic, turpentine for phosphorus, etc. [See page 52, *ante*.] Then oil, albumen or milk, to protect the mucous membrane; stimulants, opium, ammonia, etc., to antagonize the depression of the vital powers.

Gastritis, Chronic.

Arsenic, sometimes surprisingly curative; for the vomiting gtt. j–ij of Fowler's Solution before meals (B.). *Pulsatilla*, in subacute gastritis of phlegmatic temperaments, white tongue, heartburn, nausea, flatulency, little or no taste (P.) *Hydrastis*, gtt. v–xv of tincture or fluid extract, daily before meals, especially for gastric catarrh of acute alcoholism (B.). *Nux Vomica*, gtt. j of tincture every 5 to 10 minutes for 8 or 10 doses in acute gastric catarrh, with headache or sick-headache; also drop or 2-drop doses every 2 hours or oftener, when chronic gastric catarrh in the course of chronic disease (R.). *Cinchona*, to promote healthy state of mucous membrane, the infusion best with mineral acids, or quinine; the red bark in gastric catarrh of drunkards (B.). *Alkalies*, either shortly before meals, to stimulate production of gastric juice; or some hours after, to neutralize the acids of decomposition (Da C.). *Pepsin*, gr. v immediately after a meal, to assist digestion (Da C.). *Podophyllum*, in small doses at night, to act on upper bowel. Purgation as a method of treatment stands at the head (Da Costa). *Ipecac*, in small doses may prove highly useful, ♏v–x of the wine (P.); for the nausea and vomiting (R., B.). *Tannic Acid*, in 4-grain doses with a drop of glycerin to make a pill (B.). *Hydrocyanic Acid*, is much used (R.); in subacute gastritis it often proves useful given in an ordinary effervescing draught (Wa.). *Silver Nitrate*, in ¼ or ½-grain doses with opium if pain, or preferably belladonna, is extremely useful (Da C.); to check pain and vomiting (R.). *Silver Oxide*, is nearly as good as the nitrate, and not liable to produce staining (Da C.). *Opium*, or *Morphine*, to quell pain in chronic gastritis from alcoholic excess (R.). *Eucalyptus*, a most useful stomachic, not to be used in inflammatory states (B.); is used with benefit (R.) *Mercury*, the yellow oxide, in doses of gr. $\frac{1}{40}$–$\frac{1}{30}$, in chronic form. [See under DYSPEPSIA.] *Calumba*, and other bitters are useful (B). *Ammonium Chloride*, in high repute in Germany (B.). *Caffeine*, especially when associated with migraine (B.). *Bismuth*, is very useful in chronic gastritis, especially that of drunkards, and the chronic gastric catarrh of children with vomiting (R); invaluable for its sedative, alterative and astringent action; 10–15-grain doses several hours after meals (Da C.). *Lead Acetate*, in chronic gastritis with gastralgia and pyrosis, may be combined with morphine beneficially (B.). *Alum*, when vomiting of glairy mucus (B.). *Aliment*, such as will be digested in the small intestines; requires careful attention. The milk-cure has been very effective in bad cases; malt liquors are harmful (B.). Mineral waters of purgative type, to keep the portal system drained. Exercise is not beneficial; better live quietly, and occasionally spend a day or two in bed (Da C.). Kumyss very agreeable, and tolerant to stomach; the milk-cure and buttermilk have been very efficacious. The farinaceous vegetables, rice, tapioca, arrowroot, aërated bread. [Compare DYSPEPSIA, GASTRALGIA.]

Prescriptions.

℞. Sodii Bicarbonat., ... ʒjss.
Tinct. Aurantii Cort., . . . ℥ss.
Infusi Calumbæ, . . q. s. *ad* ℥viij.
M. Sig.—Two tablesp. before each meal. In chronic gastric catarrh.

℞. Magnesii Sulphatis, ... ʒj–ij.
Sodii et Potassii Tart., . . ℥ss–j.
Ac. Tartarici, ... gr. xx.
Sig.—Dissolve in a glass of water, and drink, an hour before breakfast.

. Aluminis, ... ʒij.
Ext. Gentianæ, ... ʒss.
M. Ft. pil. no. xxx. Sig.—Two twice
ily.

Argenti Oxidi, ... gr. xij.
Ext. Belladonnæ, ... gr. iij.
Olei Caryophylli, ... gtt. xx.
M. Ft. pil. no. xxiv. Sig.—One pill
ce daily. (*Da Costa.*)

℞. Sodii Bicarbonat., ... gr. lxxx.
Spt. Chloroformi, ... ℥jss.
Tinct. Gentianæ, ... ℥ss.
Infusi Rhei, ... ℥iv.
Aq. Menth. Pip., q. s., . *ad* ℥viij.
M. Sig.—A tablesp. or two before each meal. In chronic gastric catarrh, with flatulence.

Gastric Ulcer.

Arsenic, Fowler's solution in drop doses lessens the pain and relieves the miting remarkably (B.); has given relief when commonly-used remedies led (R.); gives good results when used in very small doses (Da Costa). *ismuth* relieves pain and vomiting, and contributes to the cure (B.). [See der GASTRALGIA for formulæ]. *Silver Nitrate*, in solution, to check pain d relieve the vomiting (R.); is next in value to bismuth, promoting cicatrizaon and easing the pain (B.). *Silver Oxide* is equally efficient, and is not liable produce staining (Da C.). *Atropine* often happily relieves the pain and voming, even when given in very small quantity (B.). *Morphine*, for the pain nd vomiting (R.); in full doses if perforation occurs, to localize peritonitis ntil adhesions take place (Da C). *Ergotin*, j to water x, of which gtt. xv ypodermically several times a day for the hemorrhage. *Gallic Acid*, in 5-grain pill every hour for hemorrhage. *Lead Acetate* is sedative and hemostatic; gr. ss–ij in pill with opium, very useful to check hemorrhage and allay ain (R.). *Turpentine*, 5 to 10 drops frequently repeated in hemorrhage (R). *Charcoal* is said to ease the pain by preventing formation of acid products (R.). *Mercury*. Corrosive sublimate an effective remedy; gr. $\frac{1}{60}$–$\frac{1}{30}$ thrice daily efore meals (B.). *Pepsin*, by facilitating digestion, is useful (B). *Iron* for the næmia: the lactate or ammonio-citrate if stomach irritable (Da C.). *Ice-bag*, the epigastrium, for pain and vomiting, etc. (R.). *Nutrient Enemata*, to rest he stomach. [See under ENEMATA for formula.] Brandy may be added, lso laudanum, gtt. x–xx, if the rectum is irritable (B). *Milk-cure* has succeeded admirably (B.); a strictly skimmed milk diet with lime-water, 2 parts of ilk to 1 of aqua calcis (Da C.). *Diet*, should be of non-irritating character, hich, with cold or hot compresses to the epigastrium, leaves little room for edicine. In bad cases nourish per rectum, so as to give the stomach complete est. In any case such food as is chiefly digested in the small intestines, *e. g.*, arinaceous vegetables, rice, arrow-root, etc. A nice change from milk diet is warmed pancreas, chopped up with rare meat, being nutritious and well elished (Da C). *Rest* in bed for several months is imperative (Da C.). *Defibrinated Blood*, by injection into rectum, in doses of from ℥iij–vj (A. H. Smith). [Compare HEMATEMESIS.]

Prescriptions.

℞. Argenti Oxidi,
Ext. Hyoscyami, ... āā gr. x.
Ft. pil. no. xx. Sig.—One pill thrice daily before meals.

℞. Bismuthi Subcarb., ... ʒiij.
Morphinæ Sulph., ... gr. j–ij.
Pulv. Aromat., ... ʒj.
Ft. pulv. no. xij. Sig.—One powder in ilk before each meal.

℞. Argenti Nitratis, ... gr. v.
Ext. Opii, ... gr. iij.
Ft. pil. no. xx. Sig.—One pill thrice daily.

℞. Argenti Oxidi, ... gr. v.
vel Zinci Oxidi, ... ʒss.
Morphinæ Sulph., ... gr. j–ij.
Ft. pil. no. x. Sig.—One pill thrice daily, before meals.

Glanders and Farcy.

Ammonium Carbonate, in water, hourly, as concentrated as can be swallowed, followed by an opiate, and preceded by an emetic of ipecac, and an incision into each of Wharton's ducts; proved successful in a case of acute glanders (Wa.). *Carbolic Acid*, and the *Sulphites*, as sodium sulphite, are most worthy of trial. *Creasote*, or *Carbolic Acid*, in glycerin, locally (Wa.); or dilute chlorinated soda, and lime-water. *Escharotics*, to destroy the affected spot, if inoculation occurs. *Iodine*, internally, also *Arsenic* and *Strychnine*, have been recommended. *Quinine* in large doses, and *Chloride of Iron*, may be useful. No drug yet tried has any marked specific effect on the disease (Durham).

Glandular Enlargements.

Iodine and Iodides, no remedy more efficient, when simple hypertrophy. Useless (with all other medicines) when caseation or suppuration has set in. Iodine injected into cystic and glandular growths of neck. Syrup of the Iodide of Iron occupies an important place (B.). The iodide of potassium for mammæ and testicles, but especially for thyroid (R.). *Iodoform* is equal, if not superior to iodine, in enlarged scrofulous glands, and other glandular swellings (Wa.). *Iodide of Lead*, as an ointment. *Ung. Hydrarg. Iodidi Rubri*, produces very striking effects in goitre, enlarged spleen, etc. (B.). *Sulphides*, especially the Blue Lick water, are said to abort or to mature suppuration in glands (R.). *Calcium Sulphide*, for hard, swollen glands behind the angle of jaw, with deep-seated suppuration (R.). *Calcium Chloride*, highly useful in strumous inflammation and suppuration (B.). *Pilocarpus*, is curative in acute affections of parotid and submaxillary glands (B.). *Mercury*, useful in acute inflammatory states, tonsillitis, parotitis, etc. Hydr. chlor. corr. gr. $\frac{1}{20}$ or hydr. cum creta, gr. $\frac{1}{6}$, every 2 hours (B.). The oleate of mercury and morphine in obstinate and painful tonsillitis, and inflammation of lymphatic glands (R.). *Belladonna*, especially in tonsillitis (P.). *Valerian* with *Guaiacum*, in strumous enlargement (P.). *Hydrastis*, frequently controls (P.). *Carbolic Acid Injections*, a 2 per cent. solution injected into substance of gland (B.). [Compare BUBO, GOITRE, TABES MESENTERICA, PAROTITIS, TONSILLITIS, etc.]

Glaucoma.

Atropine, gr. $\frac{1}{60}$ hypodermically beneficial (Anstie); imprudently used has caused the disease (Von Graefe, Sœlberg Wells). *Eserine*, lowers intra-ocular tension, and is indicated with *Quinine* in all cases of threatened glaucoma, to preserve the eye from the risk of consecutive glaucoma, and after iridectomy or sclerotomy (De Wecker). *Iridectomy*, the only remedy for the disease, medicine being worse than useless. The operation should be performed as soon as a state exists which can be called glaucomatous. Even when vision is lost, the operation will best relieve the pain (C.). Almost a certain cure in early stages; in later, nearly always palliative; often curative. *Drainage of Eye*, by gold wire or catgut, has had success (De Wecker).

Gleet.

Cantharides, in drop doses, when frequent desire and pain in region of prostate (R.); of benefit in subjects of relaxed fibre and feeble circulation (B.). *Blisters*, to the perinæum, of undoubted benefit (B., R.). *Piper Methysticum*, has cured obstinate gleet (Switzer). *Bismuth*, 1, glycerin 1, water 6 parts, as an injection, often useful in gleet (R.). *Eucalyptol*, is used with benefit in chronic catarrh of the genito-urinary tract (R.). *Iron*, the tincture of the chloride ʒss, in Oss of water with ʒj of laudanum, makes a good injection for gleet (R.).; internally for anæmic subjects (St.). *Mercury*, ½ grain of corrosive sublimate in ℥vj of water, is a good injection in gleet, used every 2-3

r 4 hours (R.). *Zinc Salts*, the sulphate or chloride, gr. ij of the latter to a
int of water, as injection every hour (R.). *Bougies*, of gelatin, medicated
ith astringents, are extremely efficient. *Turpentine*, in moderate doses, when
ue to relaxed condition (B., R.). *Copper Sulphate*, a solution as injection
.). Astringent injections may be used with benefit (Wa.). *Copaiba*, smeared
a bougie, and introduced into the urethra, will sometimes cause gleet to
eld (Wa.). *Oil of Sandalwood*, ♏xv ter die (R.). *Glycerite of Tannin*,
th equal quantity of olive oil or mucilage, as injection, ʒij enough. Per-
vere 8 or 10 days after discharge ceased, and do not use at bedtime (R.).
alsams of Peru and *Tolu*, *Buchu*, *Canada Balsam*, *Copaiba*, *Mastic*, and
nnin, are used with advantage (P., R.). Often kept up by over-treatment.
ill some time or other come to an end (St.). *Diet and Habits* important.
mulants, both solid and liquid, should be rigidly avoided, also coffee. Fre-
ent ablutions, fresh air, good nourishment. [Compare GONORRHŒA.]

Prescriptions.

Tinct. Ferri Chlor., ... ʒvj.
Tinct. Cantharidis, ... ʒij.
M. Sig.—15 drops in water three times
ily.

Zinci Sulphatis, ... gr. iij.
Ac. Carbol., ... ♏ij.
Ext. Hydrastis,
Ext. Belladonnæ, ... āā gr. vj.
Gelatini, ... q. s.
M. Ft. bougia no. vj. Sig.—One in
ethra at bedtime.

℞. Pulv. Cantharidis, ... gr. iij.
Ol. Terebinth., ... ʒj.
M. Ft. pil. no. xij. Sig.—One thrice daily in obstinate gleet. If strangury occur, stop for a day or two.

℞. Ac. Tannici, ... gr. x.
Bismuthi Subnit., ... ʒij.
Aq. Rosæ, ... ℥vj.
M. Sig.—Shake and use as an injection thrice daily. (*Maury.*)

Glossitis.

Bismuth, gr. xx of subnit, with ℥j of glycerin and ℥vij of water, as lotion,
r erythematous inflammation of tongue (A.). *Purgatives*, with gargles,
eches, antiphlogistic regimen generally (D.). *Quinine* and *Iron*, should be
ven internally, with dilute acid washes, and free purgation (Cl.). *Alum*, dry,
owdered, may be dusted on tongue (Cl.). *Leeches*, applied beneath the jaw,
symptoms are urgent (Cl.). *Abscess*, should be opened, if any form. *In-
sions*, along superior surface, followed by vapor of hot water, may instantly
lieve congestion (A.). *Tracheotomy*, or *Laryngotomy*, if suffocation is immi-
ent (A.).

Glottis, Œdema of.

Emetics, non-depressing when œdema slight (A.). *Inhalations*, of steam
ith benzoin, or conium, of great service (A.); or of tannin, gr. viij or x to
of water; or alum, gr. x to the ℥, or a saturated solution of potassium
lorate, all as spray (Walker). *Ethyl Iodide*, by inhalation, proved curative
one case in which it was repeated twelve times (Sée). *Scarification*, by
ryngeal lancet, of paramount value (A.). *Tracheotomy*, if the above fail
.). O'Dwyer's laryngeal tubation promises well. [Compare CROUP, LARYN-
TIS.]

Goitre.

Iodine, is curative in simple hypertrophy (ordinary goitre), used both inter-
lly and externally. Deep injection of the tincture is very successful in cystic
generation of the gland (B.); also in the fibrous and fibro-cystic varieties,
injection be made into the tumor; dangerous, if into a vein or into the
rrounding areolar tissue (Wa.). *Mercuric Iodide*, as oint. assisted by the sun's
ys, a piece the size of a large pea rubbed in daily, very successfully used in
dia for simple hypertrophy (R.); the official unguent. hydrarg. iodidi rubri,
in 10 daily (B.); is too strong (Gross); gr. xv to the ℥ strong enough for the
orst cases (Wa.). *Potassium Iodide*, internally, also externally as ointment,

in simple hypertrophy of the gland (R.). *Strychnine*, gr. $\frac{1}{16}$ thrice daily, has been successful in several cases (Holmes). *Chloride of Iron*, injections of the solution used in thirty-eight cases with curative results (Mackenzie). *Ergotine*, injected with benefit into the parenchyma of the goitre (P.); also used hypodermically with good results (Wa.). *Ammonium Chloride*, as an internal remedy, has proved curative (Stevens). *Electrolysis*, has sometimes cured cases of simple hypertrophy and cystic gland (B.). *Spongia Usta*, was formerly considered a sovereign remedy (Wa.). *Seton* has cured. *Fluoric Acid*, in doses of ♏xv to ʒj thrice daily, largely diluted, cured seventeen cases out of twenty (Woakes). *Excision*, is a very difficult operation, only to be considered in extreme cases; it has been performed successfully by Desault, Hart, Hedenus, Billroth and Greene. [Compare EXOPHTHALMOS.]

Prescriptions.

℞. Ammonii Chloridi, . . . ʒ vss.
Syrupi Simplicis, ... ℥ ss.
Aq. Cinnamomi, ... ℥ iv.
M. Sig.—Teasp. thrice daily.

℞. Ung. Hydrarg. Iodidi Rubri, ... ʒj.
Vaselini, ... ʒ vij.
M. Sig.—Use as directed. (*Gross.*)

Gonorrhœa.

Aconite, a drop of tinct. each hour in the acute stage (R.); when inflammation (Pf., St.). *Gelsemium*, serviceable, acute stage (Pf.). *Cannabis Sativa*, after acute symptoms subside, a few drops 3 or 4 times a day, is fully as effectual as copaiba or sandal, and infinitely more pleasant to take (Pf.). *Cannabis Indica*, relieves pain, diminishes discharge (P.); occasionally useful (R.). *Mercury*, excellent results from corrosive sublimate (Pf.); gr. ¼–½ to ℥viij aquæ destill. in subacute and chronic stages, as injection thrice daily; may have gr. ss–j of zinc chloride added with benefit. Often effectual (Wa.). See page 462 for formula. *Hydrastis*, the infusion best for injection, ʒj of root to ℥viij aquæ (Pf.); the fluid extract is one of the best injections, properly diluted; or the muriate of berberine (hydrastin) ʒj to ℥iv of mucil. acaciæ (B.). *Colchicum*, the wine of the seed has frequently cured gonorrhœa, and was used in thirty-minim doses nightly for the relief of chordee by Brodie (B.). *Chloride of Iron*, when acute stage has passed and the discharge is degenerating into gleet, few remedies are more useful than this tincture, in doses of ♏xv–xx thrice daily (Wa.). See ERYSIPELAS for formula. *Alkalies*, citrates or bicarbonates to render the urine alkaline (R.); Lithium Carbonate in five-grain doses thrice daily for the same purpose. Alkalies are the chief factor in Otis' treatment; Potassium Bicarb., gr. x in a tumbler of water, or in flaxseed tea, or infusion of triticum, with gr. xv of Potass. Bromide, if great pain present. Vichy Water (Celestin's) freely (Otis). *Turpentine*, in chronic stage, when parts are relaxed, moderate doses are of great benefit (B.). *Cantharides*, drop-doses may be used (R.); in the chronic stage (B.). *Pulsatilla*, in subacute and gonorrhœal ophthalmia (P.). *Copaiba*, especially adapted to gonorrhœa (B.); pour it upon a half a wineglassful of water to which add some bitter tincture (Chapman); if given too early in the disease it will aggravate the symptoms (P.); should not be used until pain in urinating is nearly gone, chordee ceased, and the discharge is diminishing and of yellow color (Wa.); is no good, but rather injurious, and prolongs the disease (Otis). See page 459 for formula. *Sandalwood Oil*, valuable in subacute (P.); a good quality difficult to obtain (Pf.). Best internal remedy; Copaiba next (St.). *Silver Nitrate*, a weak solution (gr. j–v–℥j) as injection. In vaginal gonorrhœa a strong solution (ʒj–℥j) through speculum to every part of canal (B.). As abortive injection is useless and dangerous (St.). *Cubeba*, unlike copaiba, given with good effect in acute stage; best results from mixture of both as in electuary. See formula below. Is not irritating to the stomach, and agrees with some patients better than copaiba (Wa.). *Zinc Salts*, a weak injection of the chloride, gr. j to ℥vj or viij of rose-water; or the sulphate gr. j to the ℥, frequently repeated, is probably the best treatment (B.). The best injections are those of

phate or acetate, gr. vj–xij to ℥iv aquæ, after the acute inflammation
s (St.). *Bismuth*, the oleate, smeared on a sound, and inserted for 5
s (Shoemaker); with mucilage as an injection, excellent in chronic gon-
(Hill). *Lead Acetate*, the dilute solution of the subacetate, as injection,
employed at any stage (B.). *Chloral*, a weak solution, gr. j–iv to the
ry good injection (Hill). *Resorcin*, a 1 per cent. solution makes a use-
ction (Wa.). *Injections*, of tannin, copper sulphate, iron, cadmium, port-
randy-and-water, and 1000 other agents (R.). Injections are very bad,
lly in the acute stage; should never be used until the 4th week and
ly if the case is not progressing (Otis). True gonorrhœa is never cured
time than four weeks (Van Buren and Keyes); urethritis is a different
entirely (Otis). *Balsams* of Peru and Tolu, also Buchu, Uva Ursi, Chi-
a, Pareira, etc., are among the numerous remedies used for gonorrhœa
Alcohol, as a beverage, or any other stimulant, must be avoided entirely
Soluble Bougies made of iodoform, eucalyptus and cacao-butter, are
recommended to cut the disease short (Wa.); a series of similar prepa-
, having a basis of gelatin and glycerin, medicated with the usual astrin-
d sedative drugs, is manufactured by C. L. Mitchell of Philadelphia,
y be obtained of the drug trade. *Wrappings* of several folds of cotton
ting and uncomfortable, also dirty, and productive of balanitis, etc. Pin
ront to shirt for a covering (St.). *Rest* in bed is an absolute desideratum,
lly during the inflammatory stage. Hot water, 100° F., to the penis
urination, extreme cleanliness, milk diet; water freely as a beverage;
d with a few drops of oil of gaultheria, or flaxseed tea, or infusion of triti-
th potassium bicarbonate. Sexual thoughts to be entirely avoided (Otis).
are CHORDEE, GLEET, ORCHITIS, RHEUMATISM GONORRHŒAL, URETHRI-
ETHRAL STRICTURE, VAGINITIS.]

Prescriptions.

For Internal Use.

assii Citratis, ... ℥ss–j.
. Limonis, ... ʒss.
. Simplicis, ... ℥ij.
uæ, ... ʒj.
Sig.—Dessertsp. largely diluted, 3
es daily. As alkali for the increas-
. (*Otis.*)

The Black Paste.

v. Cubebæ, ... ℥iij.
aibæ, ... ʒjss.
minis, ... ℥ij.
chari Albi, ... ʒj.
gnesiæ, ... ʒjss.
i Cubebæ, ... ʒj.
i Gaultheriæ, ... ʒj.
t electuarium. Sig.—A piece the
walnut after each meal. (*Otis.*)

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oresinæ Cubebæ, ... ℥iv.
assii Bromidi, ... ʒj.
i Sassafras, ... ♏x.
. Acaciæ, ... ℥ij.
uæ, ... q. s. *ad* ℥vj.
Sig.—Dessertsp. 3 or 4 times daily.
(*J. Wm. White.*)

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lkaline Emulsion of Copaiba see
ante, page 459.]

For Local Use.

℞. Resorcini, ... ʒj.
Ac. Borici, ... gr. xx.
Zinci Acetatis, ... gr. ¼–½.
Aquæ Destil., ... ℥iv.
M. Sig.—Dessertsp. as injection.

℞. Pulv. Iodoformi, ... ℥ss.
Ac. Carbolici, ... ʒij.
Glycerini, ... ℥ij.
Aquæ Destil., ... *ad* ℥viij.
M. Sig.—Teasp. as injection.

℞. Zinci Sulphatis, ... gr. vj.
Plumbi Acetatis, ... gr. viij.
Ammonii Chloridi, ... gr. iv.
Aluminis, ... gr. v.
Aquæ Rosæ, ... ℥j.
M. Sig.—Injection, to be used after acute symptoms subside.

℞. Zinci Sulphatis, ... gr. viij.
Liq. Plumbi Subacet. Dil., . . ℥iv.
M. Sig.—Use as an injection.

℞. Zinci Chloridi, ... gr. j.
Aquæ Rosæ, ... ℥vj–viij.
M. Sig.—Use as injection.

[For Injection Brou and others, see *ante*, page 462.]

Gout.

Morphine, hypodermically, as close to the affected joint as possible outsid of the red areola, is miraculous in giving immediate relief. *Antipyrin* remarkably efficient for relieving the pain as well as prophylactic again future attacks (Marshall). *Aconite*, may certainly relieve pain (P.). *Belladonn* the best remedy to effectually and speedily soothe pain; also in gout of t stomach, 5-♏ doses efficacious (P.). *Potassium Iodide*, especially when pa is worse at night (R.). *Colchicum* is merely palliative; a large dose (ʒj) of t wine often removes the severest pain in an hour or two, and soon after the swe ing and heat subside (R.); it is especially useful in acute and rheumatic gout (B is not specific, nor a lasting or final remedy for gout, but acts very directly the pain and inflammation of acute attacks. Laville's tincture is a colchic preparation, though colocynth is also a constituent (P.): is useful in the br chitis, asthma, dyspepsia, urticaria, etc., of gouty subjects (R.). *Veratrine* ointment to painful joints (R.). *Sulphides*, as baths in chronic gout, or fu gation with sulphurous acid, and bed-clothes exposed to strong fumes (R.); su phur waters certainly benefit (B.). *Iodine*, painted round joints in chronic (R. *Strychnine*, hypodermically for later stage of gout paralysis (R.). *Arsenic*, ver serviceable in a form of chronic arthritis allied to neuralgia (B.). *Lithium*, th bromide internally and a strong solution of lithia to the joints (B.): the bromide is the most efficient agent in combating the disease (Aulde): the carbonate (gr. v to the ℥) on lint around gouty enlargements, joints, etc. (R.). *Sodium Salicylate*, gr. x internally every 2 hours, also ʒij to ℥viij water warmed, as lotion on lint covered with oiled silk. *Guaiacum* has long had high repute, and may be given for a long time without injury (Wa.). *Rhubarb* with an alkali, regularly during intervals, very serviceable (Halford). *Manganese*, syrup. ferri et mang. iodidi (♏ x–ʒss) for the cachectic state (B.). *Alkalies*, to relieve indigestion, especially lithium salts. Alkaline mineral waters have long had a deserved reputation (B.): Magnesia and its carbonates often of great service; the latter dissolved in excess of CO_2 an elegant form of administration (Wa.). *Alkaline Poultice*, 9 of linseed meal to one of sodium bicarb. is a useful application (R.). *Turkish Baths*, are useful in chronic gout (B., R.). *Aliment*. Farinaceous vegetables and acid fruits. Avoid animal or saccharine food. Milk-cure has improved cases, and apparently removed the diathesis (B.). Cod-liver oil in chronic gout (B., R.). Entire abstinence from alcoholic beverages is best; the worst wines are port, sherry and madeira. *Local Measures*. The affected limb should be raised, and surrounded with hot, moist flannels. Wrap the hands in flannel dripping with water, and cover with water-proof bag, to dissolve gouty deposits. [Compare RHEUMATIC ARTHRITIS. LITHÆMIA.]

Prescriptions.

Scudamore's Mixture (*Modified*).

℞. Vini Colchici Radicis, . . ℥j.
Magnesii Sulphatis, . . . ʒj.
Magnesiæ Optimæ, ... ℥ij.
Aquæ Menth. Pip., ... ℥x.
M. Sig.—Tablesp. every hour until it operates.

℞. Colchicinæ, ... gr. j.
Ext. Colocynthidis Co., . . ʒss.
Quininæ Sulphat., ... ʒiij.
Ft. pil. no. lx. Sig.—One every four hours. (B).

℞. Vini Colchici Sem., . . . ℥ss.
Tinct Digitalis, ... ʒij.
Liq. Potassii Citratis, . . . ℥ijss.
M. Sig.—A teasp. in water every six hours.

Lallemand's Specific.

℞. Ext. Colchici Acet. (B. P.),
Ext. Opii Aquosi, . . . āā gr. xv.
Potass. Iodidi, ... ʒiv.
Potass. Acetatis, ... ℥ij.
Aquæ Destill., ... ℥iijss.
Vini Albi, ... ℥ss.
M. Sig.—20 drops thrice daily.

℞. Lithii Citratis,
Magnesii Carbonat., . . āā ℥j.
M. et div. in pulv. no. l.
Sig.—One in water thrice daily. chronic gout.

℞. Lithii Bromidi, ... ʒj.
Liq. Potas. Citrat., ... ℥i
Syr. Tolutan., ... ℥ij
M. Sig.—A teasp. in plenty of after each meal. (

Gums.

Myrrh, the tincture for spongy and ulcerated gums (P.); ʒij–iv in ℥iv of water or infusion of cinchona, is highly serviceable as a gargle or mouth-wash (Wa.). *Alum*, for spongy and ill-conditioned gums, tending to recede from the teeth, whether of mercurial or scorbutic origin (Wa.). *Catechu*, a piece dissolved slowly in the mouth is often of service in similar conditions (Wa.). *Rhatany*, the powder as a dentifrice, keeps gums in good order (P.). *Potassium Chlorate*, gr. ij every four hours for a child of one year, for inflammation of gums in teething (Wa.). *Carbolic Acid*, gr. iij ad ℥j aquæ, as lotion in diseases of the gums (Hilditch). *Pomegranate*, the bark an excellent basis for gargles in relaxed gums (P.). *Potassium Iodide*, gr. x thrice daily, for periostitis of alveolar processes, marked by looseness of teeth, pain and swelling of gums (Graves). *Iodine*, gr. j ad ℥j aquæ, applied by a camel's-hair brush after each meal, for retraction of gums with loosening of the teeth (Stillé). *Tannin*, the glycerite, for spongy and bleeding gums (B.). *Carbolate of Iodine*, when fetor, (B.). *Benzoin*, the tincture a good application (B.). [Compare Scurvy, Teeth.]

Prescriptions.

℞. Aluminis, ... ʒss.
Tinct. Myrrhæ, ... ʒj.
Tinct. Cinchonæ, ... ʒiv.
Mel. Rosæ, ... ℥j.
Vini Albi, ... ℥viij.
M. Sig.—Mouth-wash.

℞. Tinct. Orris,
Spt. Rosæ,
Alcoholis, ... āā ℥iv.
Ol. Amygd. Amar., . . . gtt. ij.
M. Sig.—Violet Mouth-wash.
(*Piesse.*)

Hair.

Rosemary, encourages the growth of hair, mitigates baldness, and is supposed to prevent uncurling in a damp atmosphere (P.). *Hydrogen Peroxide*, and other preparations of oxygen, are used to "blonde" the hair, for purposes of fashion (Wilson). *Hair-dyes*, comprise potassium permanganate, pyrogallic acid, black oxide of lead, which are temporary, and the black oxide of silver, which is permanent in its action (Wilson). *Depilatories* usually consist of powders containing quicklime 3 parts, sodium sulphide 1, and starch 4. A powerful depilatory is barium sulphide made into a thin paste with starch (Wilson). Another contains yellow sulphide of arsenic, gr. xx, quicklime, ℥ss, starch, ʒij. A very effective one is barium sulphide and oxide of zinc (B.). *Sarsaparilla* is stated by Teste to possess the curious property of changing red hair to a light flaxen color when taken internally for three months. [Compare Alopecia, Syphilis, Tinea Tonsurans, etc.]

Prescriptions.

℞. Sodii Boratis, ... ʒiv.
Aq. Ammoniæ, ... ℥j.
Spt. Myrciæ, ... ℥ij.
Aq. Rosæ, ... ℥xiij.
M. Sig.—Shampoo Hair Wash.

℞. Ac. Salicylici, ... gr. xl.
Tinct. Benzoini, ... ʒss.
Alcoholis, Glycerini, . . āā ℥viij.
M. Sig.—Hair Wash.

℞. Ol. Ricini, ... ℥jss.
Ol. Bergamii, ... ʒjss.
Ol. Cinnamomi,
Ol. Caryophylli, ... āā ♏vij.
Ol. Lavandulæ, ... ♏xl.
Tinct. Cantharidis, ... ʒj.
Aq. Ammoniæ, ... ʒij.
Alcoholis, ... q. s. *ad* Oj.
M. Sig.—Hair Tonic.

Hay-Fever.

Arsenic, especially valuable when disease is more of catarrhal than of asthmatic type, 3-minim doses of liquor arsenicalis (Mackenzie); as cigarettes, 2 or 3 daily (see Asthma for formula) (B.). *Belladonna*, when nasal secretion is very profuse (B.). *Euphrasia*, of decided benefit for the catarrhal symptoms (Pf.). *Quinine*, very useful after the more acute symptoms have subsided (R.); injected into the nares checks catarrhal discharge and spasmodic symptoms (P.); a solution of the hydrochlorate, gr. iv–viij ad ℥j aquæ, applied locally to nasal mucous membrane by a spray-producer or a brush, will arrest the disease if confined to the nares and fauces (B.). *Ipecacuanha*, in hay-asthma (R.); is of great value, though the smallest doses cause similar effects (P.). *Aconite* is better than arsenic in true hay-fever (R.); has been used with the best results (P.). *Grindelia* benefits cases of asthmatic type (B.). *Iodides* are very serviceable, locally and internally; large doses until some iodism observed, may be combined with arsenic (B.). *Opium*, especially as morphine, of great value in any stage, but great danger of the opium-habit (B.); the tincture in doses of ♏ij–iij every 2 hours for three doses, then ♏j every 2 hours until the discharge abates, has given excellent results (Wa.). *Black Coffee* is highly recommended (P.). *Cocaine*, a 5 to 20 per cent. solution of the hydrochlorate, brushed over the nasal mucous membrane after drying it as far as possible, is the most efficient palliative yet obtained (R.): a 4 per cent. solution dropped from a medicine-dropper well into anterior nares, the head being thrown well backward, or sprayed up the nostrils from a small atomizer; gives immediate relief, and though not curative it prevents so much suffering and distress that in no case should it be left untried (Da Costa). *Ignatia*, the tincture has seemed to benefit some cases, and to favorably influence the course of the disorder (Da Costa). *Lobelia*, has been found an efficient remedy (Wa.). *Tobacco*, smoking helps some and aggravates the symptoms in other instances. Internally ad nauseam it helps, but there are better and safer remedies (Wa.). *Removal* to the sea-coast, or to a barren, mountainous district, gives the only relief to some subjects; though many of the worst cases, hitherto unaffected by medicine, are now relieved by the local application of Cocaine. [Compare ASTHMA, CATARRH, CONJUNCTIVITIS, INFLUENZA.]

Prescriptions.

For Internal Use.

℞. Potassii Iodidi, ... ℥j.
Liq. Potass. Arsenit., . . . ℥j.
Aquæ Cinnam., ... ℥iv.
M. Sig.—Teasp. every 4 hours.

℞. Ext. Hyoscyami, ... gr. xij.
Potassii Iodidi, ... ʒj.
Potassii Bicarb., ... ʒij.
Ext. Glycyrrhizæ Pur., . . ℥iv.
Aq. Anisi, ... ℥ivss.
M. Sig.—Dessertsp. every 4 hours until relieved. (*Weber.*)

℞. Liq. Potassii Arsenit., . . ℥j.
Tinct. Belladonnæ, . . . ʒij.
M. Sig.—5 to 10 drops after meals, as a prophylactic.

℞. Tinct. Euphrasiæ, ... ʒjss.
Aq. Camphoræ, ... *ad* ℥ij.
M. Sig.—Teasp. four times daily, for the catarrh.

For Local Use.

℞. Tinct. Iodi, ... ʒj.
Ac. Carbol., ... gtt. x.
Aq. Destill., ... ℥iv.
M. Sig.—For local use with atomizer or post-nasal syringe.

℞. Menthol, ... ʒj.
Ac. Carbol., ... ʒss.
Zinci Oxidi, ... ℥j.
Ol. Amygd. Dulcis, . . . ℥jss.
Cerati Simplicis, ... ℥ij.
M. Sig.—Apply thoroughly to the nostrils every few hours.

℞. Quininæ Bisulph., ... ℥iij.
Aquæ, ... ℥iv.
M. Sig.—Irrigate the nares, after cleansing with a weak alkaline solution.

℞. Cocainæ Hydrochlor., . . gr. vj.
Aquæ Destill., ... ʒij.
M. Sig.—5 per cent. solution. A few drops to be instilled into nares while head is lowered. (*Da Costa.*)

Headache, Bilious-sick.

Antipyrine, the most valuable single remedy for headaches; an 8-grain dose in dyspeptic headache, in a little water, at commencement of attack, the patient lying down in a dark room. A second dose one hour after is generally enough, but a third or fourth may be required. Sleep generally follows, and there are no unpleasant after effects. *Acetanilide*, in 4-gr. dose, equally effective. *Nux Vomica*, gtt. j of tinct. frequently, when acute gastric catarrh, with headache and nausea (R.); gtt. j every 10 minutes, soon after meals, often gives marked relief in sick-headache not of neurotic origin (A. A. Smith). *Strychnine*, with aloin and belladonna, in minute granules, for bilious headache from obstinate constipation, effective if given several times a day for a week or ten days (Roy). *Belladonna*, the extract in doses of gr. $\frac{1}{20}$–$\frac{1}{10}$, in similar form. *Iris*, blinding headache in right supraorbital region, nausea, vomiting, usually the result of hepatic derangement. ♏j every half-hour for three doses. Usually relieves promptly (Pf.). *Bryonia*, ordinary bilious with vomiting (P.). *Picrotoxin*, gr. $\frac{1}{20}$ by stomach, in periodical form (B.). *Chamomile*, a popular remedy (R.). *Podophyllum*, in sick headache, with dark, bilious diarrhœa, or constipation with dark motions (R.). *Sanguinaria*, when due to stomach derangement, a few doses relieve (P.). *Hydrastis*, from constipated bowels (P.). *Mercury*, as "blue pill," to prevent or mitigate; or, gr. $\frac{1}{100}$ of bichloride when with light-colored diarrhœa (R.). *Ammonium Chloride* is an efficient remedy in most forms of headache (Wa.). *Sodium Phosphate*, a useful laxative in so-called "bilious-sick-headache" (B.). *Potassium Bromide*, a large dose in ordinary or sick-headaches (R.). *Ginger*, in paste, as counter-irritant (P.). *Water*, as cold or hot affusion, or ice-bag to head; hot sometimes best. The purgative waters (as Friedrichshall) before breakfast in a cup of hot water (R.); a brisk saline purgative, or small doses of Epsom salts thrice daily, very effectual for frontal headache with constipation (Br.). *Nitro-muriatic Acid*, 10 drops of the dilute acid in a winegl. of water, before each meal, often an effectual remedy (Br.) *Charcoal*, two teaspoonfuls stirred in half-glass of water, as a draught, is an efficient remedy for sick-headache with sour stomach and flatulence, etc. [Compare HEMICRANIA.]

Prescriptions.

℞. Ammonii Chloridi, ... ʒiij.
Morphinæ Acetatis, . . . gr. j.
Caffeinæ Citratis, ... ʒss.
Spt. Ammonii Aromat., . . ℥j.
Elix. Guaranæ, ... ℥iv
Aquæ Rosæ, ... ℥iv.
M. Sig.—Desertsp. every quarter-hour until relieved. (*Carpenter.*)

℞. Podophylli Resinæ, . . . gr. ij.
Tinct. Zingiberis, ... ℥ij.
Alcoholis, ... q. s. *ad* ℥j.
M. Sig.—Teasp. in a winegl. of water every night at bed-time, or every second, third or fourth night as required. (*Dobell.*)

Headache, Congestive.

Aconite, to reduce the circulation (R.). *Veratrum Viride*, at menstrual periods (R.). *Belladonna*, relieves cerebral congestion, and distress from light and sound (P.); pain over brows and in eyeballs—often due to stomach or uterine derangements—especially in young women; ♏iij of tinct. every three hours (R.). *Potassium Bromide*, a large dose (gr. xv–xx) in ordinary or sick-headaches (R.); Bromides are useful when nervous system has been irritated, but when exhausted they do harm (Hammond). *Calomel*, gr. $\frac{1}{60}$, every hour for ten or twelve doses, will relieve the headache of syphilis occurring at night (Tr.). *Cannabis Indica* is given with uniformly good results in the headache of the climacteric. *Potassium Iodide*, throbbing, intolerance of light, pain passing from back of neck over vertex to brow, nocturnal, tender scalp, almost unbearable; ten-grain doses ter die will cure (R.). *Hydrastis*, when constipated bowels (P.). *Amyl Nitrite*, for headaches with severe flushing heats at menstruation or climacteric, ♏$\frac{1}{30}$ a sufficient dose (R.). *Mustard*, in hot foot-

bath, or as poultice to nape of neck in various forms of headache (R.). *Wa*
cold water poured gently over forehead, sometimes warm water better (R.).
very hot foot-bath often effectually relieves (Wa.). *Purgatives* are often be
ficial, especially when congestive headache arises from suppression of hem
rhoidal discharge, or in persons of phlegmatic habit; aloes best (Wa.); or c
cynth, as derivative, when cerebral hyperæmia (Da Costa).

Prescriptions.

℞. Ext. Colocynthidis Co., . . gr. xij.
Pulv. Capsici, ... gr. iv.
Ext. Gentianæ, ... gr. xxiv.

Ft. pil. no. xij. Sig.—One pill thrice daily. Also a 25-grain dose of Sodium Bromide every night at bedtime.

(*Da Costa.*)

℞. Spt. Ammoniæ, ... ℥j.
Spt. Camphoræ, ... ℥ss.

M. Sig.—For a quart of water in w
a handful of common salt has been
solved. Cork tightly and use locally
lint as an evaporating lotion.

Headache, Nervous.

Cannabis Indica, ten-minim doses of the tincture thrice daily in the intervals
often curative in bad cases of neuralgic headache; or ¼ to ½ grain doses of
the extract (P.). See under HEMICRANIA. *Belladonna*, ♏iij of tinct. every
3 hours, when pain over brows and in eyeballs, especially when at menstrual
periods; also when from overstudy or fatigue (R.). *Nux Vomica*, if with
gastric symptoms (R.); is better than strychnine, and should be given in quarter-grain
doses of the extract after meals, combined with iron and quinine if patient
is chlorotic (Hammond). *Bromides*, when the nervous system has been irritated
are useful, but harmful when it is exhausted (Hammond). *Silver Nitrate*, half-grain
doses with minute doses of pil. coloc. comp., invaluable in headaches of
hysterical women, and especially stomach headaches of delicate and literary
men (Wa.). *Ignatia*, removes clavus hystericus (Pf.). *Ammonia*, the aromatic
spirits (ʒss–ʒij) or the carbonate (gr. v–x) in nervous headache (B.); the hydrochlorate
(gr. x–xx) in bilious and hysterical headaches, especially in hard-worked
and delicate young women (Wa.). *Amyl Nitrite*, inhaled when extreme pallor
of face (B.). *Arsenic*, throbbing supra-orbital (R.); as a nerve tonic stands
next in value to Zinc (Hammond). *Cimicifuga*, in nervous or hysterical women,
especially at menstrual periods (R.); in rheumatic headaches and menstrual
(P.). *Coffee* and *Tea*, when from nervousness or exhaustion (R.); coffee espe
cially useful (P.). *Guarana*, a very effective palliative, gr. xx every half-ho
for three doses (P.); ♏xv of the fluid extract every quarter-hour increased
♏xl will often relieve periodical headaches not of malarial origin (A. A. Smi
Sodium Salicylate, in small doses, gr, ij–iij every quarter-hour, is very effic
in neuralgic headache (Br.). *Caffeine Citrate*, two-grain doses, in capsule, e
half-hour, a very effectual remedy for nervous and sick headache, but c
insomnia if used in the evening. *Phosphorus*, as dilute phosphoric ac
doses of ♏xxx well diluted, thrice daily; or zinc phosphide, gr $\frac{1}{10}$ in p
die, very useful in most forms of nervous headache (Hammond). *Cajup*
well rubbed in twice daily (P.). *Menthol*, locally to forehead in fronta
ache (Wa). *Potassium Cyanide*, locally in reflex headaches, as gastric,
pulmonary, menstrual (B.). *Valerian* is of great value in excitable
(P.). *Camphor*, a saturated solution in eau-de-cologne rubbed on head
uterine origin (R.); in hysterical females, internally, with magnesium
(P.). *Podophyllum*, purgative doses often give relief when near
periods, with constipation and dark stools (R.). *Zinc Oxide*, two-
doses useful (R.); a remedy of great value (Hammond). *Bismut*
carbonate, in two-grain doses after each meal, often better than zinc
where gastric disturbance (Hammond). *Ether Spray*, for fronta
after acute illness or fatigue (R.). *Chloroform*, ♏xv–xxx of the
nally, often effective (Wa.). *Galvanism*, sometimes valuable;
current always, avoiding too great intensity lest amaurosis ensue
[Compare HEMICRANIA, NEURALGIA.]

Prescriptions.

ii Cyanidi, ... gr. x–xx.
Laurocerasi, ... ℥iv.
—Apply locally on a compress
an hour. (B.)

Phosphidi, ... gr. iij.
Nucis Vom., ... gr. x.
ct. Rosæ, q. s.
v. in pil. no xxx.
e pill after each meal.
(*Fordyce Barker.*)

℞. Extracti Nucis Vom., . . . gr. iij.
Ferri Reducti, ... gr. xij.
Quininæ Sulphatis, ... gr. vj.
Ft. pil no. xij. Sig.—One after each meal. (*Hammond.*)

℞. Ext. Cann. Ind. Fl., . . . ℥ss.
Pulv. Acaciæ, ... ʒv.
Syr. Aurantii Cort., . . . ℥ij.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Teasp. every 3 hours.

Heart Diseases.

, in the highest degree serviceable to diminish excitement or irrita-
is more a remedy for functional derangement than for organic disease
n pericarditis (R.). Nervous palpitations and hypertrophy (P., B.).
seldom affected in rheumatic fever if aconite be used from the start
ratrum Viride, as cardiac depressant (B.); in chronic cardiac diseases
essive hypertrophy, *i. e.*, when digitalis is contraindicated (W.). *Cimi-*
fer than digitalis in fatty heart (B.). Its action is strongly stimulating
; it relieves excessive dyspnœa when weak heart (P.). *Caffeine*, an
cardiac stimulant, and diuretic, gr. ij–v of the citrate every three hours
Arsenic, for dyspnœa from weak heart (R.); in all cardiac neuroses
cially valuable when combined with iron and strychnine, and is
as indispensable in all forms of weak heart accompanied by pain
igitalis, acts as a stimulant tonic (P.); small doses for sedative action;
hysiological doses to create hypertrophy in dilatation (Tr.); irregularity
s best indication (R.). Irritable heart (Da Costa). The freshly-made
he best preparation (B.); especially indicated in weak heart acting
cause of its weakness, and in valvular disease (Wa.). *Convallaria*
vill usually succeed in all cases in which digitalis is useful, acting
o that drug, but with less reliability; is useful in aortic disease and in
ere digitalis cannot be used (Wa.); valuable in all forms of heart
here there is œdema of tissues (Sée). *Strychnine*, in medicinal doses,
engthen heart-beats (R.). *Blisters*, flying, over præcordial region, to
action in extreme weakness (R.). *Alcohol*, brandy when heart sud-
eebled by fright, loss of blood, etc. (R.). *Ether*, ♏xx hypodermically,
soon, is a very promptly acting stimulant in sudden heart-failure.
pound spirit in ʒj doses for less urgent cases. *Morphine*, next to
is in general the most indispensable remedy in the treatment of severe
ase, being by far the most efficient agent for the dyspnœa (Strümpell):
ically, is employed in many cardiac disorders with marked advan-
cially in dyspnœa and angina with diseased coronary arteries; mitral
ion, with its dyspnœa and insomnia; aortic disease, etc. *Iron*, useful
forms, especially anæmic disorders and palpitation. Also in dilata-
atty heart, and mitral regurgitation (B.). *Hyoscyamus*, in functional
ent from emotion, is specially indicated; requires large doses (♏xl–
. $\frac{1}{48}$ of hyoscyaminæ sulph. hypodermically (Wa.). *Amyl Nitrite*
eart-pains resisting all other treatment (W.). [Compare ANGINA PEC-
ROPSY, ENDOCARDITIS, PERICARDITIS, and the five following articles.]

Prescriptions.

Ergotæ Fl . . . . . . ℥iijss.
Digitalis, ... ℥ss.
—Teasp. thrice daily in enlarged
ut valvular lesion. (B.)

℞. Spt. Ætheris Comp.,
Liq. Morphinæ Sulph.
(U. S. P., 1870), . āā ℥j.
M. Sig.—Teasp. as required for the dyspnœa.

Heart, Dilated.

Digitalis, where much dilatation, and hypertrophy of left ventricle withou valvular disease. Is not contraindicated when aortic disease (R.); physiological doses (Tr.). In simple dilatation gives most favorable results (W.). Ver useful in mitral disease, with dilatation of the left ventricle (P.); gives miraculous relief, is not sufficiently appreciated, but requires skilful administratio Use the infusion in preference to other preparations, a tablespoonful thrice dail watching its effects (Da Costa). *Scoparius*, the infusion (broom-tea), to maintain the kidney action if digitalis is not sufficient (Da C.). *Purgation*, bris free watery stools next to digitalis are the best treatment (Da C.). *Morph* hypoderm. gr. ⅛–⅙ two or three times a week in dilated heart with dyspnœ (B.). *Amyl Nitrite*, dyspnœa from dilatation (R.); is useful when great dyspnœa (cardiac asthma) (P.). *Ether*, the compound spirit an excellent remedy fo the dyspnœa (Da Costa). *Mercury*, a classical pill and a very efficient one a a diuretic in dropsy from cardiac disease is the combination of gr. j each of Pulv. Digitalis, Pulv. Scillæ and Hydrarg. cum Cretâ (B. Foster).

Heart, Fatty.

Iron, the tinct. ferri perchlor. in small doses for a long time, has been of remarkable benefit (Wa.). *Cimicifuga*, safer than digitalis (B.); the latter should not be used (Wa.). Digitalis of no value except for very temporary use and for some special indication (Da Costa). *Strychnine*, often the first remedy to do good. Unduly pushed will produce nervous worry and be injurious (P.); is the remedy with iron, nourishing but not fat-making diet, and wine to keep up the tone of the blood (Da C.). *Ergot*, occasional doses have been given with apparent benefit (Wa.). *Ether*, the compound spirit for sudden attacks of pain or dyspnœa (Da C.). *Amyl Nitrite*, for the same, but chloral must be entirely debarred (Da C.). *Stimulants*, freely, in an acute attack of any kind, give the only chance (Da C.).

Heart, Hypertrophied.

Aconite, often better than digitalis (R.); dangerous in hypertrophy of left side, with diseased valves, but useful in simple hypertrophy (P.); for overaction, with hypertrophy (B.); the one remedy which can be depended on. Small doses for months, say gtt. j of a good tincture ter die, to lower the heart gradually and keep it low (Da Costa). *Digitalis*, very useful in pure hypertrophy due to valvular disease or excessive muscular exertion (R.). The primary action (small doses) required, as it creates hypertrophy when given in physiological or tonic doses (Tr.). *Veratrum Viride*, as a cardiac depressant (gtt. v ter die) will relieve in simple hypertrophy, and irritable heart from abuse of tobacco, inadmissible when valvular lesions exist (B.); gives the best results, next after aconite (Da C.). *Lead Acetate*, for violent palpitations, in some instances (Wa *Amyl Nitrite*, in dyspnœa, syncope (R.). *Ergot*, in enlarged heart without v vular lesion; may be combined with digitalis (B.). *Potassium Iodide*, sm doses long continued, benefit some cases (Wa.). *Camphor*, in doses of gr. iij— daily for tumultuous palpitations, and dyspnœa of hypertrophy with dilatati (Wa.) *Iron* is necessary where anæmia exists (Da C.). *Quiet Life* of gre importance, no stair-climbing, no long walks; rest in bed often of service days at a time, moderate diet, avoiding fattening foods, meat, and stimulan (Da C.).

Heart, Palpitation.

Aconite, for "fluttering" of nervous persons, and nervous palpitations (for over-action, with hypertrophy (B.); for palpitation with simple hypertro (P.). *Hydrocyanic Acid*, when from dyspepsia (P.). *Iron*, when due to mia, a very frequent cause. Other causes are tobacco, coffee, tea, etc., to ex

venery, excessive exercise (Da C.). *Spigelia Anthelmia*, when due
d aortic disease, with much dyspnœa (P.). *Digitalis*, in small doses
(Tr.); combined with iron in palpitations with valvular disease, or
ry severe cases (Wa.); suits a large number of cases, especially for
purposes (Da C.); the only remedy of positive service for the actual
(Richardson). *Camphor*, recommended in nervous palpitations
trine, as ointment to chest, when rapid, irregular pulse, hurried
dropsy and lividity, palpitation, inability to lie down (R.). *Nux*
great value in nervous palpitation. *Bromides*, in "fluttering"
are useful when tolerated by the stomach (Da C.). *Hyoscyamus*, in
d violent palpitations from excited state of the brain (P.); in large
unctional disturbance arising from emotion (Wa.). *Belladonna*, in
, may also be applied externally, when irregularity of rhythm (Da C.).
ervous, with dyspnœa (P.). *Eucalyptus*, palpitation and weak heart
anization, of cervical sympathetic and pneumogastric, for palpitation
Foot-Bath relieves palpitations (R.). *Milk-cure*, has been beneficial
action (B.). *Ice*, to the cardiac region, has benefited many cases;
value when patient can be kept in bed, which sometimes becomes
Da C.).

Prescriptions.

igitalis, ... gr. xx.
olchici Sem., ... gr. xl.
icarb, ... gr. lx.
in pil. no. xl. Sig.—One pill
times daily, gradually reduced
dtime. For irregular cardiac
(*Bowditch.*)

℞. Tinct. Digitalis, ... ʒij.
Spt. Etheris Nitrosi . . . ℥j.
Liq. Ammonii Acet., . *ad* ℥iv.
M. Sig.—A dessertsp. every 4 hours.
If prolonged insomnia with palpitation add
of Morph. Sulph. gr. $\frac{1}{16}$ to each dose.
(*Richardson.*)

Heart, Valvular Disease.

, in aortic regurgitation (R.); most effective in mitral insufficiency
pid action with low arterial tension; and in mitral disease. Infusion
sp. doses twice daily (B.); ♏j of tinct. every ½ hour or hour, often
relief than larger doses (A. A. Smith); when heart is weak and
Da Costa). *Morphine*, hypodermically for dyspnœa, better in mitral
rtic disease (R.); the agent above all others in aortic insufficiency,
the two great symptoms therein, the cerebral anæmia and the dysp-
aortic regurgitation what digitalis is to mitral (Dujardin-Beau-
onite, useful for the palpitation, but dangerous in hypertrophy of left
iseased valves (P.); for cases presenting excessive growth and strong
inishes the blood-pressure in the arterial system, and gives great
.). *Veratrum Viride*, has similar applicability, but is more apt to nau-
admirable sedative, and one which does not sicken is a mixture of
iti, ♏j, Tinct. Verat. Vir., ♏iij, Tinct. Zingib., ♏vij (Da C.). *Strophan-*
ardiac tonic like Digitalis, but does not contract the vessels nearly as
. *Nitroglycerin*, is the best of all remedies when actual cardiac pain;
lood-pressure and diminishes the resistance the heart has to over-
.). *Caffeine*, as a tonic and diuretic, of especial value in cases where
anty, with cardiac pains, headache and dyspnœa, and weak heart;
citrate every three hours (Da C.). *Adonidine*, in doses of gr. $\frac{1}{16}$ to
ily, acts excellently as a cardiac regulator (Da C.). *Barium Chlo-*
in pill three or four times daily, is diuretic, lessens cardiac pain,
tone in the vessels, and is a good general and cardiac tonic (Da C.).
ith jalap, etc., in engorgement of right side of heart (R.); occasion-
(Da C.). *Treatment* is directed chiefly to the dilatation or hyper-
ulting from the valvular disease. The simplest rule is to use judg-
o when the heart needs strengthening by Digitalis or reducing by
by Veratrum Viride (Da C.) [Compare ENDOCARDITIS.]

Hectic Fever.

Quinine, large doses, gr. xv–xx daily, if stomach and intestines don't rebel (P.); given before the paroxysm, to limit it (Roberts). *Antipyrine*, is better than quinine, but must be used in much smaller dosage than ordinarily employed, say gr. iv or v about ½ hour before fever rises, then doses of gr. ij hourly as long as temp. remains above 100.5°. This daily, will give excellent results in hectic of phthisis (Pribram). *Aconite* in small doses, a remedy of much value in the irritative fever of phthisis (Da C.). *Morphine* and other anodynes, are of especial value, given in full doses toward bed-time (Gross). *Prunus Virginiana*, the bark has been found useful, especially when irritable cough (P.). *Calcium Phosphate*, is especially useful (R.). *Calumba*, excellent for tonic effects (P.). *Digitalis*, the tincture, combined with tinct. ferri chloridi, abates the temperature and diminishes the sweats (B.) *Iron*, the mistura ferri composita has obtained great celebrity, especially when much debility and anæmia (Wa.); the sulphate and tincture of the chloride of especial value in the treatment of hectic (Gross). *Ipecacuanha*. A few grains of Dover's powder at bed-time, will stop the profuse perspirations (Wa.). *Salicin*, for profuse perspirations (Wa.); as antipyretic. [Compare PERSPIRATION, PHTHISIS.]

Prescriptions.

℞. Tinct. Digitalis, ... ʒiij.
Tinct. Ferri Chlor., . . . ʒv.
M. Sig—15 drops 3 or 4 times a day.
(B.)

℞. Quininæ Sulph., ... ʒjss.
Elix. Taraxaci, ... ℥iv.
M. Sig.—Teaspoonful every hour [illegible] six hours.

Hematemesis.

Ipecacuanha, is decidedly effective in small doses, also when hematemesis is vicarious of menstruation (P., Wa.). *Hamamelis*, ♏j–ij of tinct. every 2 or 3 hours (R.); effective from its tannin (B.). *Alum*, serviceable in passive hemorrhage; iron better (B.). *Turpentine*, especially in passive hemorrhage with debility (R.); and in hemorrhagic transudations on the free mucous surfaces—hematemesis, etc. (B.). *Ergot*, has often cured when other means failed (P.); most valuable. In urgent cases ergotine in 2- to 5-gr. doses hypodermically (R.). *Iron*, the subsulphate (Monsel's solution) or pernitrate, the best remedies; gtt. j–ij frequently, diluted with ice-water (B.). *Lead Acetate*, especially in gastric ulcer, gr. ss–gr. v (B.). *Tannic Acid*, gr. x–℈j, when from gastric ulcer or obstructive disease of liver (B.). *Gallic Acid*, an extremely useful agent; is best used in combination with dilute sulphuric acid (Wa.). *Ice*, small pieces swallowed, a most useful agent, with perfect rest for stomach; when hematemesis from that organ, nutrient enemata must be employed. Iced champagne to arrest faintness, if persistent; when moderate need not give cause for alarm.

Prescriptions.

℞. Olei Terebinth., ... ʒiij.
Ext. Digitalis Fluid., . . . ℥j.
Mucil. Acaciæ, ... ℥ss.
Aq. Menth. Pip., ... ℥j.
M. Sig.—Teasp. every 3 hours.

℞. Ac. Gallici, ... ʒj.
Ext. Ergotæ Aquosi,
Digitalis, ... āā gr. xx.
M. et div. in pil. no. xx; Sig.—One every 4 hours.

Hematocele, Pelvic.

Opium, or morphine, if needed for pain, with absolute rest in bed, and a moderately tight abdominal bandage (E.). *Hemostatics*, as gallic acid, lead, turpentine, etc., to arrest the hemorrhage, if it be still going on, combined with opiates, and the use of ice-bags or cold lotions to the abdomen or per vaginam. *Tonics*, as iron and quinine, while resolution of the extravasation is going on.

Bromides and Iodides, to quiet the action of the ovaries, if the hemorrhage recurs at different periods. *Potassium Iodide*, as an absorbent, may be given with quinine (Braxton Hicks). *Iodized Cotton*, an excellent application to the cervix uteri in cases of hematocele (Wa.). *Leeches*, should be applied early in cases of peri-uterine hematocele; later, except to check inflammation, they are inadmissible (Wa.). *Mercury*, gr. $\frac{1}{20}$ of the bichloride thrice daily, with iron and ergot, conjoined with vaginal injections of hot water morning and evening; later in lieu of the mercurial the syrup of the iodide of iron in 20-drop doses thrice daily, was thoroughly efficient treatment in one very bad case of retro-uterine hematocele (Hengst). *Surgical* interference has many advocates, but is criminal in a large majority of the cases (E.). If the case does not end in resolution it will terminate in pelvic abscess.

Prescription.

℞. Iodi, ... ℥j.
Potassii Iodidi, ... ℥ij.
Glycerini, ... ℥viij.

Mix and saturate 8 oz. of cotton with the mixture; then carefully dry, and label "Iodized Cotton."

Hematuria.

Turpentine, when with constitutional debility (B.); in very small doses (R.); often is very efficacious (P.). [See *ante*, HEMATEMESIS, for formula.] *Hamamelis*, has arrested severe cases (R.). *Chimaphila*, controls hematuria (P.). *Gallic Acid*, the most uniformly successful remedy (B.); gr. x–xx every hour or two (Da Costa). *Sulphuric Acid*, alone or with gallic acid, is an efficient remedy (Da C.). *Acetic Acid*, in a case of alarming hemorrhage from the bladder, which occurred after an operation for vesico-vaginal fistula, and resisted all other means, an injection of apple-vinegar and ice-water, equal parts, succeeded in arresting it (Ghent). *Quinine*, large doses necessary; cures when intermittent or from malarial infection (B.); useful in some cases of intermittent hematuria (R.). *Iron*. Tinctura ferri perchlor, ♏x–xx several times daily; in this affection the best form of iron for internal use (Wa.). *Ipecacuanha*, exercises a powerful influence (Wa.). [See *ante*, HEMATEMESIS.] *Ergot*, by stomach or subcutaneously; may be combined with ipecac, krameria, or other astringents (B.). *Ergotine*, hypodermically, is far superior for efficacy and rapidity of operation (Wa.). *Matico*, the infusion, in doses of ℥ij every 2 or 3 hours, is fully equal to gallic acid, lead, etc. (Thompson). *Ammonium Benzoate*, in 5-grain doses, for the albuminuria and hematuria of scarlatina (Hillier). *Cannabis Indica*, is especially indicated in dysuria and strangury when there is bloody urine (R.). *Camphor*, in 2 to 5-grain doses is said to promptly remove the renal hyperæmia with bloody, coagulable urine, caused by cantharis, turpentine, oil of mustard, copaiba, etc. (R.). *Ice* in rectum or to perineum, for vesical hemorrhage (Thompson).

Prescriptions.

℞. Acidi Gallici, ... ʒss.
Ac. Sulphurici Dil., . . . ʒj.
Tr. Opii Deodor., ... ℥j.
Infusi Digitalis, ... ℥iv.

M. Sig.—Tablesp. every 4 hours or oftener. In hematuria, menorrhagia, purpura hemorrhagica, and the hemorrhagic diathesis. (D.)

℞. Ext. Ergotæ Fluidi,
Tinc. Krameriæ, ... āā ℥j.
M. Sig.—A teasp. every hour or two.

℞. Ext. Ergotæ (Squibb), . . ʒj.
Aquæ, ... ℥j.
M. Sig.—For hypodermic use; ♏x contain gr. j.

Hemeralopia and Nyctalopia.

Strychnine, night-blindness; small doses, gradually increased, of service (Wa.). *Mercury*. Hydrarg. chlor. corr. gr. ij ad aquæ ℥j, dropped into the eye twice daily, with blister on each temple, and mild aperients, cured hemeralopia

(Smith). *Quinine*, in as large doses as can be borne, after cathartic and emetic, for night and day-blindness (Howard). *Blisters*, small, 1½ inches in diameter, close to external canthus of the eye (Bampfield). *Electricity*, occasionally useful (Wa.). *Rest*, protection of eyes from bright light, constitutional remedies, as indicated by state of general health, change of climate, speedily cures hemeralopia. It is sometimes merely a symptom of pigmentary degeneration of the retina, or a feature of scurvy.

Hemicrania.

Belladonna, when due to vaso-motor spasm, the face being pallid (B.); the tincture in small and repeated doses if the disease be of reflex character (H.); *Iris*, in blinding form, from hepatic trouble, right supra-orbital region; every half-hour for 3 doses, usually relieves promptly (Pf.). *Cannabis Indica*, one of the most valuable remedies for megrim or sick headache, apparently acting on the nervous centre whence the disorder springs; is most useful in the intervals to prevent the attacks, and especially when the paroxysms are becoming more frequent; it may be combined in pill with either iron or aloes (K.); in the congestive form of especial value, the tincture in repeated doses until physiological action is induced (H.); gr. ⅓ of the extract before each meal, increased gradually to ½ or ⅔ grain, in the intervals, kept up for 3 months (Seguin); gr. ⅛ of the solid extract night and morning, very efficient in migraine, if used continuously for some time (Hare). *Camphor*, gr. iij–v, with xx or xxx-grain dose of magnesic carbonate, is very useful, especially in hysterical females (P.). *Croton-chloral*, in milder forms without severe vomiting, headache being predominant; the bromides are useful after it (R.); rarely of any use, but if given it should be in 20-grain doses twice daily (H.); *Guarana*, is useful (B.), a very effective palliative; gr. xx every ½-hour, for three hours (P.); efficacy diminishes by degrees, attacks usually become longer (Tr.); ʒij of fluid extract in course of an hour or two, to anticipate the attack when expected (Seguin). *Caffeine*, in typical migraine; gr. j ad ♏︎xxv–xxx aquæ hypodermically (P.); is especially adapted when chronic gastric catarrh, gr. j every ½-hour (B.). The citrate in grain doses every hour for some time before a paroxysm (Wa.); gr. j every ½-hour often gives marked relief (A. A. Smith). *Valerian*, of especial value when in excitable temperaments; after profuse or painful menstruation (P.). *Ammonium Chloride*, is exceptionally serviceable; seldom fails to cut short an attack (Austin), x–xv gr. doses (B., R.); as a diffusible stimulant is very efficient, gr. xx up to ʒj every hour during the attack (H.). *Sodium Chloride*, in small doses, proved very efficient in six positive cases attended by gastric distress (Rabon). *Antipyrine*, the most valuable single remedy for headache, especially in migraine and those cases of it for which Ergot and Amyl Nitrite are indicated. 5 grains at beginning of the attack often sufficient (Birdsall); of great value in true migraine, employed in twenty cases with unfailing benefit; less useful in the malarial or dyspeptic forms, and useless in uræmic (Thompson); one dose of gr. xx, or 2 doses of gr. x each, ½-hour apart, given in the prodromal period, or at the very beginning of a paroxysm, will invariably cut it short within an hour (Sprimon, Ungar, etc.). *Podophyllin* or *Mercury*, bilious origin (R.). *Bromides*, for true migraine. Raspail's eau sedative locally, gives great relief (B.). When due to uterine disorder (R.). *Potassium Bromide*, very serviceable in the paroxysm, also in continuous form (R.). *Eucalyptus*, in cerebral anæmia (B.). *Digitalin*, granules ([illegible] bis die), for congestive hemicrania (B.). *Ergot*, if due to miliary aneurisms of intercranial arterioles; also in congestive migraine, and in nearly all kinds (B.). *Menthol*, locally in frontal headache due to migraine, is said to be very efficient (Wa.). [See formula below.] *Piscidia*, is highly recommended (Wa.); efficient in doses of ʒij of the fluid extract (Ford). *Arsenic*, for cerebral congestion and hemicrania (B.); for throbbing pain in one brow (R.); often has the best effect. Watson believed that gtt. iv–vj of liq. arsenic, 3 or 4 times a day, with due attention to the bowels, would cure 9 out of every 10 cases (Wa.). *Aconitine* or *Veratrine*, ointment, over brow (R.); Aconitine is of great service internally (Seguin). *Phosphorus*, is strongly recommended (R.). *Amyl Nitrite*, by inhalation, in migraine, with pallor of face (B., R.). *Sanguinaria*, a few doses very successful, when m. due to stomach derangement (P.). *Ignatia*, removes clavus hystericus (Pf.). *Nux Vomica*, when of gastric origin (R.). *Cimicifuga*, is strongly recommended (P.). *Rubber Bandage*, applied tightly from eyes up, protecting the temporal arteries by pads, or a dry muslin bandage wetted after being put on (Weir Mitchell). *Acupuncture*, the needle run down to the cranium, will give relief to clavus hystericus, when nothing else will do so (Pancoast).

Prescriptions.

℞. Quininæ Sulph., ... ʒ ss.
Pulv. Belladon., ... gr. x.
Ext. Digitalis, ... gr. xv.
Ext. Valerianæ, ... ʒ ss.
Mellis, ... q. s.
Ft. pil. no. xl. Sig.—2 to 10 pills daily, gradually increased, during 3 or 4 days before the expected attack.

℞. Mentholi, ... ʒ j.
Alcoholis, ... ℥ j.
Ol. Caryophylli,
Ol. Cinnam., ... aa ♏ xx.
M. Sig.—Apply with finger over seat of pain.

℞. Ammonii Chloridi, ... ʒ vj.
Ammonii Bromidi, ... ʒ iv.
Spt. Etheris Nitrosi, ... ℥ j.
Syr. Pruni Virgin., ... ℥ iij.
Aquæ, ... q. s. *ad* ℥ vj.
M. Sig.—Dessertsp. three or four times daily, conjoined with the use of *Raspail's Eau Sedative* (see page 94), locally.

℞. Aconitinæ (Duquesnel), . . gr. $\frac{1}{12}$.
Alcoholis,
Glycerini, ... aa ʒ j.
Aq. Menth. Pip., . . q. s. *ad* ℥ ij.
M. Sig.—Teasp. thrice daily.
(*Seguin.*)

Hemiopia.

When established, hemiopia offers little hope of cure, though it has no tendency to progress. In hemiopia scintillans, *Potassium Bromide*, gr. xl–lx daily, or band of such metal as idiosyncrasy of the patient may decide, with stimulants to ward off the aura; *Quinine*, *Iron*, *Hydropathy*, when Potassium Bromide fails (De Wecker).

Hemiplegia.

Strychnine, is most useful when members are relaxed; hypodermically, when paralysis incomplete, and the muscles flaccid but not wasted (B.). [See PARALYSIS for formula.] *Potassium Iodide*, gr. x–xviij daily, occasionally proves effectual (Wa.). *Galvanism*, constant current to the brain or cord, faradic to the muscles opposite those contracted (Hammond). *Physostigma*, prevents muscle wasting, and hence is given with benefit to hemiplegics; gr. $\frac{1}{20}$–$\frac{1}{10}$ of the extract repeated frequently (R.). *Massage*, in hemiplegia and other forms of paralysis due to intercranial lesions, when cold and blue skin, wasting and contracted muscles, ulcerations, etc. (B.). *Cocculus*, in hysterical, epileptic, and choreic hemiplegia, acts well; also in hemiplegia from cold (P.). [Compare PAKALYSIS, FACIAL.]

Hemoptysis.

Gallic Acid, exceedingly effective (P.); may be combined with ergotin and digitalis. [See HEMATEMESIS and HEMATURIA for formulæ.] *Acetate of Lead*, with opium (B.); proves signally useful (Wa.). *Ergot*, the fluid extract in 30 to 40–minim doses, every 3 or 4 hours, or hourly in severe cases; or Ergotin hypodermically for urgent cases, in 2 to 3-grain doses (R.). *Opium*, should be freely used for the attendant excitement (W.). *Turpentine*, drachm-doses every 3 hours, may cause unpleasant symptoms which soon disappear on its discontinuance (R.); has proved very efficient (P.); after other hemostatics fail it is worthy of trial (Wa.). *Alum* is serviceable in purely atonic hemorrhages (Wa.); in 10-grain doses every 2 hours (B) *Oil of Erigeron*, is very efficient when no fever or other signs of constitutional irritation (Wa.). *Hamamelis*, ♏j–ij of tincture, every 2 or 3 hours (R.); ♏ij–x of fresh tincture several times a day (Pf.). *Ipecacuanha*, has been highly praised (R.); in emetic doses (Tr.); arrests as emetic (B.); arrests, though in poisonous doses producing hemoptysis (P.). *Ferric Acetate*, a little added to water so as to taste, this constantly sipped (R.). Iron spray will often arrest (B.). *Digitalis*, has undoubted power over hemoptysis (B.). Small doses daily (P.). Infusion in large doses (R.). *Arnica*, of great service, if from violence (P.). *Aconite*, employed with best results (P.). *Sodium Chloride*, half a teaspoonful of common salt, taken dry, repeated till nausea (R.). *Sulphuric Acid*, the dilute acid a useful adjunct to other treatment (Wa.). *Spinal Hot-Water Bag*, to cervical or upper dorsal vertebræ (R.). *Auxiliaries.*—Cold externally, acidulated drinks, perfect rest, and antiphlogistic diet (Wa.).

Prescriptions.

℞. Ext. Ergotæ Fl., ... ℥jss.
Ext. Ipecac. Fl.,
Tr. Opii Deod., ... āā ʒij.
M. Sig.—Teasp. every ½ hour.

℞. Plumbi Acetat., ... gr. xx.
Pulv. Digitalis, ... gr. x.
Pulv. Opii, ... gr. v.
M. ft. pil. no. x. Sig—One every 4 hours. (B.)

℞. Aluminis, ... ʒj.
Sacch. Alb., ... ʒss.
Pulv. Ipecac. Comp., . . . gr. xx.
M ft. pulv. no. vj. Sig.—One every 2 hours. (Skoda.)

℞. Liq. Ferri Subsulph., . . . ♏xx.
Aquæ, ... ℥ij.
M. Sig.—Use as spray by inhalation for 5 minutes every hour.

Hemorrhage, Hemorrhagic Diathesis.

Acids. *Sulphuric* sometimes very effective in uterine hemorrhage (B.). *Dilute Vinegar* to leech-bites, piles, cuts, etc. (R.). *Apple-Vinegar* as injection for vesical hemorrhage. [See under HEMATURIA.] *Iron*, when hemorrhagic diathesis due to anæmia; the tincture of the chloride preferred (B.). The tincture of ferric perchloride as styptic (Wa.); 1 or 2 teaspoonfuls of the concentrated solution in a glass of water, an excellent hemostatic (Tr.). The acetate, just enough to make water taste, in hemorrhage of lungs and kidneys (R.) *Ergot*, in uterine hemorrhage of any kind, and many forms of hemorrhage, ergot or ergotine of great value (P.); not to be relied on alone. (B). *Alum*, is sanctioned by high authority (B.); dusted on in slight cases (R.); in uterine and traumatic hemorrhage, when small vessels open (Tr.). *Hamamelis*, ♏j–ij of tincture every 2 or 3 hours, effective in many forms (R.). *Ipecacuanha*, produces hemorrhage in poisonous doses, yet has great energy in arresting it (P.); exercises a powerful influence on internal hemorrhage generally, and in exhaustion therefrom; gr. j–ij every ¼ hour (Wa.). In emetic doses serviceable (Tr.). *Turpentine*, few agents more useful in the passive forms (B.); small doses in hematuria (R.); for serious hemoptysis, and hemorrhage of typhoid (P.). *Belladonna*, hemorrhage from rectal ulcers (P.). *Digitalis*, in uterine, and many other forms, of great value (P.); with restoratives has undoubted power in the hemorrhagic diathesis (B.). [See HEMOPTYSIS.] *Chimaphila*, controls hematuria (P.). *Gallic* and *Tannic Acid*, in all passive hemorrhages, especially in that of the bladder (P.). Tannic Acid for local use, Gallic for systemic effects upon remote parts. When hemorrhage occurs in relaxed and debilitated constitutions, Gallic Acid may be combined with Ergot and Digitalis (B.). *Matico*, proves useful in many cases, especially menorrhagia, hematuria and hemoptysis (Wa.). *Nux Vomica*, in hemorrhagic diathesis, especially when occurring in anæmic subjects. Also the syrup of iron, quinine, and strychnine; no prescription more generally useful (B.). *Aconite*, to reduce the circulation, in epistaxis, hemoptysis, etc. (P.). *Cinchona*, internally, very efficient in some forms of hemorrhage (Tr.). *Copper Sulphate*, in stick, solution, or ointment, to arrest hemorrhage from small vessels (R.).

Arnica, in hemorrhages (ecchymoses), from mechanical violence (P.). *Rhatany*, the extract, one of the most powerful hemostatics (Tr.). *Grape-cure*, as tonic for convalescents (P.). *Alcohol*, in hemorrhagic diathesis, to elevate the arterial tension (B.); brandy, wine, when heart suddenly enfeebled by hemorrhage (R.). *Venesection*, will promptly arrest pulmonary hemorrhage (B.). *Styptics*, are either needless or inefficient, hence practically useless in general surgery; hemorrhage should be controlled by either pressure or ligation (Roberts). *Hot Water*, sponged over a bleeding surface, the best agent to stop hemorrhage (Gross). *Transfusion*, when death imminent (B,). *Ice*, internally in wounds or hemorrhage of lungs, or from stomach; small pieces frequently (R.). *Rest*. Perfect rest often indispensable, especially in hematemesis, in which nutrient enemata may be required. [Compare DYSENTERY, EPISTAXIS, HEMATEMESIS, HEMOPTYSIS, HEMORRHOIDS, HEMATURIA, HEMORRHAGE, POST-PARTUM—INTESTINAL, MENORRHAGIA, METRORRHAGIA, PURPURA, WOUNDS, etc.]

Prescriptions.

Pagliari's Styptic.

℞. Tinct. Benzoini, ... ℥ viij.
Aluminis, ... lb. j.
Aquæ, ... lb. x.

Boil 6 hours in a glazed earthenware vessel, adding hot water in lieu of that vaporized, and keeping well stirred; filter, and put up in stoppered bottles.

℞. Infusi Digitalis, ... ℥ ij.
Ext. Ergotæ Fluidi,
Tinct. Krameriæ, . . . āā ℥ j.

M. Sig.—A tablesp. as required in hemorrhagic conditions generally. (B.)

Pancoast's Styptic.

℞. Potassii Carbonat., . . . ʒ ij.
Saponis, ... ℥ j–ij.
Alcoholis, ... ℥ iij.

Mix and use as a styptic, especially for operations about the face. (*Jos. Pancoast.*)

℞. Ext. Ipecac. Fl., ... ʒ ij.
Ext. Ergotæ Fl., ... ʒ iv.
Ext. Digitalis Fl., ... ʒ ij.

M. Sig.—Half-teasp. to a teasp. at a dose, repeated as required. An excellent anti-hemorrhagic combination. (B.)

Hemorrhage, Intestinal.

Turpentine, should be used (B.); especially in typhoid (P.). [See HEMATEMESIS, for formula.] *Belladonna*, for irritable and bleeding rectal ulcers (P.). *Iodine*, in passive, gtt. j–ij of tinct. frequently repeated, of great service (B.). *Sulphuric Acid*, is serviceable (B.). *Acetate of Lead*, often of great service, especially when used as an enema (Jenner). *Tannin*, one of the most serviceable remedies for the intestinal hemorrhage of typhoid fever (B.). *Hamamelis*, very effective in intestinal hemorrhage, owing to its large proportion of tannin (B.). *Ergot* is most valuable; may be given hypodermically in urgent cases (R.). *Gallic Acid*, gr. xv with gtt. iij–v of laudanum, in a winegl. of iced water, every 2 or 3 hours in the hemorrhage of typhoid (Jenner). *Opium*, a valuable adjunct to astringents, allaying the nervous excitement (Wa.): is most useful (Da Costa). [Compare HEMORRHOIDS, DYSENTERY, TYPHOID FEVER.]

Hemorrhage, Post-Partum.

Hamamelis, for persistent oozing (R.). *Ipecacuanha*, in flooding after delivery (R.). *Iron*, Monsel's solution, j–iij of water, strong enough and safe as injection (B.); the perchloride diluted (R.). *Amyl Nitrite*, ♏v by inhalation, has stopped a hemorrhage promptly and permanently (Kerr). *Ergot*, a full dose of the fluid extract as soon as birth is completed as a prophylactic (Playfair); hypodermically in urgent cases, gr. ij of Bonjean's Ergotine deeply into the tissues of the arm (Wa.); ʒss doses of the fluid extract every 4 hours in secondary hemorrhage. *Cimicifuga*, will check post-partum hemorrhage, especially when tediously prolonged (P.). *Digitalis*, the infusion best; a tablesp. bis die, or in urgent cases every half hour for 4 doses (B.). *Nux Vomica*, gtt. xx; ext. ergot, fl. gtt. xxx; each hour for 2 or 3 doses (B.).

Opium, the tincture ʒj, with brandy, in profuse flooding (R.). *Vinegar*, a handkerchief soaked in vinegar and carried into the uterus, will often check a severe hemorrhage (Landis); is antiseptic, astringent and sufficiently irritating to produce contraction, yet not so irritating as to cause subsequent mischief, and always acts promptly (Penrose). *Tamponade* by absorbent cotton, plugs of linen, etc., is indicated in hemorrhage from abortion or placenta prævia (Parvin); never tampon after delivery! you might as well hang the woman by the neck (Wallace). *Auxiliary Measures* of importance are firm pressure on the uterus, compression of the abdominal aorta, the plug, and if necessary intra-uterine injections (Wa.). *Hot Water*, 110° to 122° F., injected into uterus, extremely successful in checking post-partum hemorrhage (Atthill); the most prompt and certain method, and the least unpleasant to the patient (Parrish). See also Dr. Cameron in Canada Med. and Surg. Jour., March, 1878, with record of 16 cases so treated. *Ice*, to abdomen or within the womb (B.); into womb or rectum (R). As a prophylactic against hemorrhage and to secure firm contraction of the uterus, a good method is to grasp the womb through the abdominal parietes with a hand kept cold by frequent immersion in a pan of broken ice, while waiting for the expulsion of the placenta. While one hand is kept on the uterus the other may be immersed in the ice. *Transfusion* of milk into veins may be necessary in cases of collapse (Thomas).

Hemorrhoids.

Galls, as ointment, very useful: the official unguentum gallæ, or combined with lead and opium. See formula below (R.). *Iron*, a solution of the subsulphate as wash to bleeding piles, which should then be well oiled (B.): or an ointment of the subsulphate, gr. xv to the ℥, locally night and morning, with gr. j of the salt thrice daily by mouth; gives excellent results. *Hamamelis*, by mouth, also lotion or injection in bleeding piles (R.); is employed with satisfaction; ♏ij–x of tincture several times a day; also enema or suppository (Pf.). *Nux Vomica*, emphatically beneficial (P.). *Sulphur*, gr. v–x, with ʒj confec. sennæ, as laxative (R.). Exercises a most soothing influence (Wa.). *Sulphides*, especially Blue Lick waters (B.). *Podophyllum*, as cathartic for hemorrhoids of recent formation, bleeding from stasis in portal circulation (B.). *Aloes*, causes congestion of pelvic viscera, yet Fordyce Barker shows it to be curative in piles, especially in recent ones, as after delivery (B.); to greatly relieve bowels (R.); cures by removing constipation (P.). *Hydrastis*, as lotion or ointment to external piles, of great value; ♏v of tincture ter die internally at same time (P.). *Ergot*, with or without nux vomica, in dilated hemorrhoidal veins without new tissue, given by the stomach and used locally will often cure (B.). [See DIARRHŒA for formula.] *Stillingia*, will remove permanently when due to constipation, and temporarily when from hepatic obstruction (B.). *Senna*, to procure soft and easy evacuations, use the confectio sennæ at bedtime, gr. cxx in a bolus (B.). *Iodoform*, the ointment, and in suppository (B.). *Nitric Acid*, as caustic, followed by free use of olive oil (B., R.); ℥ss–℥j ad Oss of water as lotion for bleeding piles (R.). *Hyoscyamus* or *Stramonium*, leaves bruised, or ointment, locally, for pain (P.). *Oleum Lini.* Linseed Oil, boiled, in doses of ℥ij twice daily, has quite a reputation as a remedy for piles (W.). *Alum*, to painful bleeding piles, a crystal trimmed and passed into rectum, or as an ointment (B.). *Ice*, to painful, bleeding piles, or cold water injected daily (B.); locally, for pain after operation (R.). *Leeches*, directly to swollen, irreducible, and painful piles (B.). *Alkaline Mineral Waters*, excellent (B.). *Carbolic Acid*, 3 parts to 1 of olive oil, a few drops injected into the tumor. A favorite and successful treatment by itinerants (Andrews); uncertain in all cases and in many fraught with danger (Gross). A good procedure, use 4 drops each of pure carbolic acid and glycerin, and inject one tumor at a time (Hunt). *Grape-cure*, is used with success (B.). *Saline Purgatives*, notably Epsom salts, in bleeding piles, combined with sulphuric acid, will often stop the hemorrhage (B.). [See Dys-

ENTERY for formula.] *Diet, etc.* Avoid stimulants, indigestible food and overeating; during an attack use little animal food. Petroleum soap when piles protrude, with cold or tepid water ablutions. Injections, Oj cold or tepid water, are very useful. Stool should be at night. *Surgical Methods* are—the ligature for internal hemorrhoids, excision for external ones. *Ligation* is the proper treatment for the former, all other methods of operating radically being now discarded as unsurgical, and dangerous to life (Gross). The *thermo-cautery* is used by Smith of London and many other surgeons, but is apt to leave behind fissures and ulcers, which are with difficulty healed. *Prevention.* Soft seats favor the production of piles, as also of uterine disorders, by pressure on he arteries as they emerge from the pelvis, and so tend to drive the blood into he interior of that cavity (Holden).

Prescriptions.

℞. Pulv. Gallæ, ... gr. xx.
Pulv. Opii, ... gr. x.
Ung. Plumbi Subacet., . . gr. xl.
Ung. Simplicis, ... ℈j.
M. et ft. unguentum. Sig.—Ointment for iles. (*Œsterlen.*)

℞. Ext. Colocynth. Co., . . . gr. xxx.
Ext. Nucis Vom., ... gr. vj.
Hydr. Chlor. Mitis,
Ext. Hyoscyami, ... āā gr. xij.
M. et div. in pil. no. xij.
Sig.—One as required for sluggish owels. (*Barker.*)

℞. Ac. Carbolici, ... ℈ij.
Ac. Tannici, ... ʒj.
Alcoholis, ... ℥iv.
Glycerini, ... ℥j.
M. Sig.—Hypodermic injection for piles. (*Girard.*)

℞. Iodoformi, ... ʒj.
Balsam. Peruv., ... ℈ij.
Magnes. Calcin., ... ʒj.
Ol. Theobromæ,
Ceræ Albæ, ... āā ℈jss.
M. et fiant suppositoria xij. Sig.—One twice daily.

℞. Pulv. Gallæ,
Pulv. Opii,
Plumbi Acetat., ... āā gr. xx.
Ung. Picis Liquidæ,
Cerati Simplicis, ... āā ℥ss.
M. et ft. unguentum. Sig.—Apply night and morning after bathing parts with cold water.

℞. Ext. Opii, ... gr. x.
Pulv. Stramonii, ... ʒj.
Pulv. Tabaci, ... ℈ss.
Ung. Simplicis, ... ℥ss.
M. Sig.—Ointment for piles. (*Shoemaker.*)

Hepatalgia.

Ammonium Chloride, grains xx–xxx, every 4 hours, is highly efficacious Anstie). *Bryonia*, worthy of commendation in many liver affections (P.). *Nux Vomica*, has been found of much benefit. Dose should be small, gr. $\frac{1}{100}$ to $\frac{1}{32}$ wice or three times a day (P.). *Quinine*, would naturally be thought of in nalarial subjects, but does not afford any relief (Anstie).

Hepatic Cirrhosis.

Nitric Acid, in long standing diseases, as this, will augment flow of bile after ver has struck work from mercury (R.). The mineral acids do not benefit B.). *Arsenic*, small doses perseveringly, give good results in improving the utrition of the organ (B.). *Bryonia*, of great value in many liver complaints P.). *Iodides*, are the best remedies for the first stage (B.): the potassium iodide s highly recommended by some authorities (Da Costa): the great measures in he treatment of this affection are potassium iodide, hydrotherapy, and a milk liet (Lanceraux). *Stillingia* and *Alkaline Mineral Waters*, are important in he first stage (B.); alkalies early, especially Carlsbad water, with total abstinence from alcoholic beverages (Legg). *Mercury.* Corrosive sublimate in small doses, gr. $\frac{1}{40}$ thrice daily, for a long time, does benefit the condition, and has possibly cured a few cases (Da C.). *Sodium Phosphate* is said to produce good results (Da C.); has power to retard the sclerosis, and may possibly arrest the changes and restore a state of comparatively normal function (B.). *Chloride of Gold and Sodium*, in doses of gr. $\frac{1}{30}$, as an hepatic alterative, may be used conjointly with phosphate of sodium (B.). *Tapping* becomes necessary for the dropsy, though purgation and diuresis may help to lessen it (Da C.). *Diet*, should be easily digested, especially milk, avoiding starches and fats, and quitting alcohol (Da C.).

Hepatic Congestion.

Nitric Acid, in chronic congestion, will augment flow of bile after liver has struck work from excessive use of mercury (R.). *Nitro-Muriatic Acid*, is found useful in India, with the acid bath (℥iij ad gall. j) to hypochondrium (B.): formerly held high rank but is now superseded by ammonium chloride; the acid baths being now rarely employed (Fayrer). See page 462 for formula. *Sulphur*. Sulphates in purgative natural waters, small doses often repeated; potassium sulphate is occasionally poisonous (R.). *Chelidonium*, as deobstruent (P.); energetically affects the liver (Pf.). *Iodine*, tincture and unguent, locally for hepatic engorgement after malarial attack. The iodide of ammonium in moderate frequent doses in functional derangement, from malarial disease (B.). *Sodium Phosphate*, ʒj–ij, 3 or 4 times daily, in plenty of water, as a purgative (B.). *Ammonium Chloride*, in passive congestion, and chronic torpidity, is well worthy of attention; gr. xx every 4 hours (Wa.); an excellent remedy (Da Costa). *Turpentine*, epithems, hot, often found very beneficial (Wa.). *Quinine*, gr. xv–xx with morphine, gr. ¼–½, in the acute congestion due to climatic or malarial causes, no remedy so efficient (B.). *Bryonia*, is worthy of commendation in liver affections of various kinds (P.). *Iris*, really serviceable when stools clay-colored and skin jaundiced (B.); is one of the best aperients in hepatic derangement (P.). *Mercury*, valuable only as a purgative; its use restricted to cases where there is deficiency or excess of bile (B.); a full calomel purgative is of utility in cases of congestion (Wa.). *Podophyllum*, the resin in congestion of the portal circulation, is especially useful (B.); ⅙–¼ gr. doses every six hours will speedily relieve symptoms (P.). *Sanguinaria*, is useful in hepatic engorgement without organic disease (P.). *Colchicum*, in hepatic congestion and dropsy; an active remedy in congestion of the liver (B.). *Resin-bearing Purgatives*, as Rhubarb, Podophyllum, Iris, Euonymus, etc., are all actively cholagogue. (See list on page 39.) *Ipecacuanha*, decidedly stimulant to the flow of bile (B.); is the Indian treatment now for the local liver, given in large doses for a week or two (Da C.). *Taraxacum*, has had a reputation, but I cannot recommend it (Da C.). *Aliment*. No starches or fats. Milk, eggs, oysters, beef broth, whitefish, etc. (B.). *Cold Water Belt* around the abdomen, covered with oiled silk, gives great comfort in chronic cases (Da C.). [Compare BILIOUSNESS, JAUNDICE, ETC.]

Prescriptions.

℞. Elaterii, ... gr. j.
Spt. Ætheris Nitrosi, . . . ʒij.
Tinct. Scillæ,
Tinct. Colchici, ... aa ℥ss.
Syrupi Simplicis, ... ℥j.
M. Sig. Teaspoonful thrice daily. (B.)

℞. Hydrarg. Chlor. Mitis, . . gr. vj.
Pulv. Ipecac, ... gr. j.
Sodii Bicarb., ... gr. x.
Div. in pulv. no. ij. Sig.—One at bedtime, followed by the following:—

℞. Ac. Nitrohydrochlor. Dil., ʒiij.
Elix. Taraxaci Co., . . *ad* ℥vj.
M. Sig.—Dessertspoonful before meals, and a milk diet.

℞. Ext. Taraxaci, ... gr. lxxij.
Ext. Aloes, ... gr. xxiv.
Ext. Colchici Rad.,
Pulv. Ipecac., ... āā gr. xij.
M. et div. in pil. no. xxiv.
Sig.—2 nightly in chronic enlargement and torpidity. (Martin.)

℞. Sanguinariæ, ... gr. viij.
Podophyllini, ... gr. iij.
Ext. Hyoscyami, ... gr. iij.
Saponis, ... gr. viij.
M. et div. in pil. no. xx.
Sig.—2 to 4 pills daily. In hepatic torpor without organic disease. (Phillips.)

. Pil. Hydrargyri,
Pulv. Aloes Socot., . . . āā gr. iv.
Pulv. Rhei,
Extr. Hyoscyami, . . . āā gr. vj.
M. et div. in pil. no. vj.
Sig.—2 pills every other night.

. Cinchonidinæ Sulph.,
Euonymini,
Leptandrini,
Juglandini,
Irisini, ... āā ʒj.
Podophyllini,
Ext. Belladonnæ,
Ext. Hyoscyami, . . . āā gr. x.
M. et div. in pil. no. lx.
Sig.—One pill thrice daily. In obstinate
epatic torpor. (*Blackwood.*)

℞. Euonymini, ... gr. xij.
Ext Hyoscyami, ... gr. vj.
M. et div. in pil. no. vj.

Sig.—One at bedtime, followed next morning by a full dose of an aperient mineral water.

℞. Potass. Bicarb.,
Potass. Citratis, ... āā ℥j.
Syrupi Simplicis, ... ℥vj.

M. Sig.—A teaspoonful to a tablesp. with a similar quantity of lemonjuice, in ½ glass of water; the whole to be drank while effervescing. (*Wood*)

Hepatic Diseases.

Ammonium Chloride is highly serviceable in all cases of liver disease,
hether due to organic changes or to functional derangement; especially
dicated after the more acute symptoms have abated (Wa.). *Nitro-hydro-*
iloric Acid formerly held high rank, but is now superseded by ammonium
loride (Wa.); even the acid baths, so long considered of great importance,
e now but little, if ever, used in India (Fayrer). *Nitric Acid* acts in some
y beneficially on long-standing liver-diseases, as in chronic congestion and
rhosis (R.); with vegetable bitters, long continued, useful in waxy liver
Va.). *Podophyllum* has a high reputation in a variety of liver diseases (P.);
actively cholagogue (R.). *Mercury*, mercurial purgatives are used for both
ficiency and excess of bile; harmful in many acute forms of hepatic disease,
d generally are of doubtful propriety in liver affections (B.); in hepatic con-
stion a full calomel purge is of great benefit (Wa.). *Red Iodide of Mercury*,
ointment, gr. j to ʒv, gives best results in malarial enlargement of the liver
V.). *Calomel* is used in inflammatory disorders of the liver, but is less suited
parenchymatous than to serous inflammations (Da Costa). *Ipecacuanha*
omotes the flow of bile (B.); may be used in small doses with great advan-
ge in functional derangement of the organ (Wa.). *Resinous Purgatives*, as
eptandra, Iris, Euonymus, Rheum, etc., are decidedly cholagogue (B.).
uonymin is of great value in torpid liver and its accompanying headache
V.). *Bryonia* is worthy of commendation in liver affections of various kinds
.). *Chelidonium* powerfully affects the liver (Pf.). *Taraxacum* is highly
commended in all chronic affections of the liver, especially in indolent
nlargement and incipient scirrhus (Watson). *Sodium Phosphate* is cholagogue,
nd extremely useful in liver affections, especially the jaundice of children and
epatic calculi (Thudicum). *Phosphorus* specifically affects the liver, and used
arly in acute yellow atrophy may have an action of antagonism upon the
isease (B.). *Potassium Salts*, as depuratives, are of decided value, especially
ie citrate, in hepatic torpor and other affections (W.). See preceding article
or formula. *Sulphur*, the sulphurous mineral waters, prolonged, give excel-
ent results in liver disorders (B.). *Alkaline Waters* are very serviceable (B.);
specially the sulphur waters. Glauber's salt in their place (Da Costa). *Chlo-*
ine Water has been employed with benefit in chronic hepatic affections, in
loses of ʒss–ij in ℥iij or iv of water (W.). *Iron* preparations, long continued,
n amyloid degeneration (Da C.). *Gentian*, and other bitter tonics, in func-
ional disorder; also *Nux Vomica* occasionally, but use mercurials and podophyllum sparingly (Da C.). *Iodine and Iodides* in waxy enlargement, simple
hypertrophy and chronic congestion, of great value (Wa.); the iodide of
potassium alternately with the iodide of iron in waxy liver (Frerichs); a few

drops injected into hydatids (B.). *Sanguinaria* is of great value in hysteria from chronic hepatitis, and in hepatic engorgement without organic disease (P.). See preceding article for formula. *Stillingia*, for torpid liver and jaundice following ague, in the first stage of cirrhosis, and in ascites from hepatic changes (B.). *Malt Liquors* are harmful in all chronic affections, especially in fatty liver (B.). *Galvano-puncture* for hydatids, the negative needle into the hydatid (B.). [Compare Lists of Agents acting on the Liver, page 39, *ante;* also, the articles in this section entitled BILIOUSNESS, CALCULI, CANCER, HEPATALGIA, HEPATIC CONGESTION, HEPATIC CIRRHOSIS, HEPATITIS, JAUNDICE.]

Hepatitis and Hepatic Abscess.

Ammonium Chloride is almost a specific in hepatitis and abscess of the liver (Stewart); often preventing the latter disorder and in many instances curing it (Wa.). *Quinine*, in large doses for the acute parenchymatous inflammation (Da Costa). *Tartar Emetic*, gr. ¼–½ every two or three hours, with opium or calomel as indicated by symptoms; of especial value early in the acute attack (Wa.). *Leeches* to margin of the anus in the acute type (B.); to unload the portal system (Wa.). *Mercury* is used, but is better suited to serous inflammations than to parenchymatous ones (W.). *Chelidonium* has been used with benefit in both acute and chronic hepatitis (P.). *Alkalies and Colchicum*, when the affection is of a gouty nature (Wa.). *Sulphites* are recommended in chronic forms (Da Costa). *Sinapisms* and linseed poultices over the hepatic region in acute hepatitis (Wa.). *Saline Purgatives*, as the sulphates of sodium or magnesium, to increase the watery exudation from the mucous membrane of the intestines, in acute hepatitis (Wa.). *Nitro-Hydrochloric Acid*, for some time in chronic form tending to abscess (Da C.). *Aspiration*, when pus forms; early operation the rule of practice; has induced many recoveries (Da C.). [Compare JAUNDICE.]

Hernia.

Opium, or morphine hypoder. to narcotism, often obviates the necessity of an operation in strangulated hernia (Wa.). *Chloroform*, of evident benefit (Wa.); inhaled to assist reduction (R.); has superseded the use of tobacco and lobelia in strangulated hernia (P.). *Coffee*, large doses, has certainly a remarkable influence in aiding or causing reduction of strangulated hernia (Wa.). *Oak Bark* extract, as injection into the tissues, for a radical cure by stimulating the occlusion of the rings (Heaton's radical cure). A similar operation was patented by a Dr. Gage in 1840, the oil of cloves being the injection used. Professor Pancoast injected tincture iodine for the same purpose. *Operations* for radical cure all satisfactory. A properly adjusted truss (Ag.): is the best remedy for a reducible hernia, answering the purpose of a retentive apparatus, and often permanently curing the disease by the steady, gentle and uniform pressure of its block (Gross). *Ice Poultice* is of use if no strangulation of gut or omentum (Wa.). *Sternutatory*, as snuff or ipecac, to cause sneezing while patient lies on his shoulders with elevated hips and legs over the back of a chair, frequently successful after taxis has failed to effect reduction.

Herpes.

Ferrum Arseniate, in doses of gr. ⅛ daily, will effect the cure of a herpetic affection in the adult, however extensive or long established (Duparc). *Mercury*, calomel ointment, ʒj to the ℥, is one of the best mercurial preparations (Pereira). *Potassium Carbonate*, as lotion, gr. xxx to Oj, to allay irritation (Wa.); or as ointment, gr. xx to ℥j, smeared over eruption at night, and washed off in the morning with a solution, gr. xxx to Oj (Neligan). *Glycerin*, diluted, is a servicable application in herpes labialis (Wa.). *Ergot*, the oil prepared by the action of benzin upon ergot, which, upon evaporation of the solvent, makes a valuable application in herpes genitalium and other skin

ffections (Shoemaker). *Alum*, in herpes præputialis, a solution of ʒj to ℥j
quæ, applied on lint to the glans penis, is generally effectual (Wa.). *Collo-*
ion, the flexible form, is applicable to various kinds of herpes (Wa.). *Mag-*
esium Citrate, as a cooling laxative, with soothing and protective lotions and
ntments, and the *Liquor Picis Alkalinus*, diluted 10 to 20 times for the itch-
g (Bulkley). *Astringent Lotions*, of tannin or zinc sulphate, in herpes præ-
tialis, to render the parts less sensitive (Da Costa). [For Herpes Circinatus
e TINEA CIRCINATA.]

Prescriptions.

. Tragacanthæ, ... ʒij–iv.
Liq. Calcis, ... ℥iv.
Glycerini, ... ℥j.
Aquæ Rosæ, ... ℥iij.
M. Sig.—A soft jelly for local use as
tment.

℞. Ac. Carbolici, ... gtt. v–xv.
Pulv. Calaminæ Præp.,
Zinci Oxidi, ... āā ʒss–j.
Ung. Aq. Rosæ, ... ℥j.
M. et ft. unguentum.
A soothing and protective application.

Herpes Zoster.

Rhus Toxicodendron, very readily subdues, especially when burning or itch-
g (P.). *Aconite* and *Opium*, locally, for pain (Wa.). *Morphine*, oleate ext.,
thout friction (R.); hypoder. to mitigate the pain (Anstie). *Celandine* has
en recommended (P.). *Dulcamara* has an old reputation (P.) *Silver Ni-*
ate, painted on the warning patch of erythema, before or as soon as vesicles
gin to form (R.). As a local application, reported on favorably (Wa.). *Vera-*
ine, as ointment, ℈j–ij–℥j, in neuralgia following shingles (R.). *Zinc Phos-*
ide, gr. ⅓ every 3 hours, is said to control the pain and abort the eruption
ughes). *Grindelia* is reputed to relieve the pain (Stillé). *Mercury*, the Ung.
ydrarg. Ammoniat. is said to relieve the pain and irritation remarkably (Wa).
isters, for subsequent neuralgia (R.). *Hot Fomentations* will often disperse
.). *Baths* daily, exercise out of doors, abundant nutritious food. *Flexible*
llodion, constantly reapplied to exclude air (Anstie). *Galvanization* of the
ected intercostal nerves, the positive pole over their points of emergence, the
gative brushed over the terminal filaments in the skin (B.). *Starch*, dusted
er the eruption, and on a muslin band sewed tightly around the body to pro-
t it from the friction of the clothes, gives the greatest relief (Bulkley). *Rest*,
solute, when eruption is extensive (Fournier).

Prescriptions.

. Zinci Phosphidi,
Ext. Nucis Vomicæ, . . āā gr. x.
M. et div. in pil. no. xxx.
Sig.—One every 2 to 4 hours, as a nerve
nic. (Bulkley.)

. Liq. Sodii Hypochlorit., . ℥iv.
Aquæ, ... ℥ij.
M. Sig.—Wash for ulcerated vesicles.
(*Fournier.*)

℞. Bismuthi Subnit., ... ʒiv.
Hydr. Chlor. Mitis,
Zinci Oxidi, ... āā ʒj.
M. ft. pulvis. Sig.—To be dusted on cotton-wool, and applied to the ulcerated vesicles, after washing with the solution of Sodium Hypochlorite. (*Fournier.*)

Hiccough.

Nux Vomica, in 5- or 10 ♏ doses of tincture, with ♏xv of dilute nitric acid;
short course frequently curative (P.). *Chloroform*, combined with opium (R.).
epper, gr. ij–x, to stop hiccough (P.). *Laurel-water*, a useful remedy, ♏v (P.).
orphine, hypoderm., often arrests (R.). *Camphor* has been recommended
R.). *Mustard*, ʒj infused in ℥iv aq. fervid. has cured most obstinate cases
R.). *Pilocarpine*, gr. $\frac{1}{36}$ of the muriate, has cured bad cases which resisted
ll other means (Ortille). *Ether*, as spray to the epigastrium for ten minutes,
hen the site of the phrenic in the neck (Regoni); or the spirit, ♏xx–xxx in

e aromatic water, given internally, will often arrest the spasm immediately a.). *Zinc Valerianate*, gr. ¼ with a small portion of extr. belladonnæ, cured severe case of fifteen days' duration (Danet). *Nitro-glycerin*, sometimes rests (R.). In mild cases deep inspirations, holding breath as long as possible, or a firm belt around epigastrium (T.).

Hydrocele.

Iodine, injection of tincture 1, water 2, into the sac to excite obliterative inflammation, the usual procedure for radical cure after tapping the sac (Wa.); may be used full strength, or with equal part of water; the latter the safest method in ordinary cases, but relapses are not infrequent (Gross). *Carbolic Acid*, ʒss, with a minute quantity of water or glycerin to render it fluid, injected into sac and manipulated to bring all portions under its action, after which rest in bed and support to scrotum (Levis); a very efficient method for radical cure, but may cause erosion of vessels and hemorrhage into sac (Gross). *Ammonium Chloride*, as discutient lotion to the scrotum in hydrocele of children (Wa.). *Galvano-puncture*, a current of 20 to 40 elements, by two needle electrodes, will invariably cure (B.). *Operations* for radical cure include that by iron-wire sutures to excite adhesive inflammation (Simpson); and the incision of the hydrocele under antiseptic precaution (Volkmann); the same end may be obtained by the simpler methods of injection noted above (Gross). [Compare DROPSY, ORCHITIS.]

Hydrocephalus, Acute.

Iodine, lotions to scalp, or inunction of iodine ointment together with ferric iodide and cod-liver oil internally, offer the best chance of success, although most remedies often fail (Wa.). *Tartar Emetic*, oint. as counter-irritant to scalp in tubercular meningitis (R.); in large doses internally was formerly employed (Wa.). *Croton Oil*, is said to have removed the excess of fluid from the ventricles (R.). *Mercury*, hydrarg. chlor. corr., in doses of gr. $\frac{1}{30}$ to $\frac{1}{16}$, has proved successful (Wa.). *Magnesium Carbonate*, ʒj–ij saturated with lemon-juice, every 2 or 3 hours, a useful purgative in hydrocephalus (Wa.). *Turpentine*, in doses of ♏v–x with ♏xx–xl of castor-oil, or terebinthinate enemas, in incipient hydrocephalus (Wa.). *Purgatives*, in small doses every 4 or 6 hours after having overcome the constipation, to maintain action for some days. A single dose of calomel, followed up by magnesium sulphate at short intervals. Their value can hardly be overrated (Wa.). *Leeches*, on crown of head rather than on temples, when much febrile action; inadmissible if patient is much debilitated; sometimes serviceable (Wa.).

Hydrocephalus, Chronic.

Mercury, holds a high place in the opinion of many. Calomel gr. ¼–½ twice daily, with mercurial inunction to the shaved head, or the latter alone; child to wear a woollen cap. This treatment for 30 or 40 days (Wa.). *Ferric Iodide*, with cod-liver oil, always gives good results among the poor (Wa.). *Iodine*, lotions. [See HYDROCEPHALUS, ACUTE.] *Potassium Iodide*, may arrest progress (Wa.); is of value certainly; appears to have power of promoting absorption (W.). *Cod-liver Oil*, sometimes improves the condition, especially in scrofulous children (Wa.). [Compare DROPSY.]

Hydrophobia.

Belladonna, in all hyperæmic states of the brain and spinal cord, is one of the very best remedies (P.). *Stramonium*, is used by Brahmins in India with apparent success. *Glonoin*, may be of benefit (Wa.). *Nicotine*, rightly used, will probably prove to be our best remedy (B.). *Amyl Nitrite*, should be fairly tried (B.). *Curare*, is encouraging, grm. 0.02 injected, 7 doses in 5½ hours, dispelled the symptoms, but replaced them by paralysis of limbs continuing over 2 months (Ros.); has seemed to antagonize the convulsive phenomena (B.). *Chloride of Lime*, a filtered solution injected into wound, very effective in snake bites (Binz.). *Morphine*, chiefly palliative. For deep injection into the tetanized muscles (B.). [SEE TETANUS.] *Coniine*, is indicated; has not succeeded (B.). *Cauterization*, with hot iron or caustic potash after cleansing wound, which should be kept open by unguentum basilicon for 5–6 weeks (Ros., A.); with *Silver Nitrate* sharpened to a point, and applied freely to every sinuosity of the wound as preventive (Wa.). *Excision*, the safer practice (Wa.). *Baths*, warm and hot, produce calm (Ros.). *Pasteur's Inoculation*, with a "modified virus," is claimed to protect the person bitten from the disease.

Hydrothorax.

Digitalis, in purely dropsical form, also in passive pleuritic effusions; used as a diuretic (℥ j–ij of infusion bis die, or oftener) of great value (R.). *Elaterium*, unquestionably of value as a derivative, though many fear it (P.). *Jaborandi*, produces good results (B.). *Iodine*, ℥ j of tincture injected in returning hydrothorax (B.). *Sanguinaria*, has been used with the best effects (Wa.). *Blisters*, when effusion has taken place, certainly seem to stimulate the absorbents to action (Wa.). *Dry Cupping*, over the chest, gives relief (DaCosta). *Thoracentesis*, if much distress. [Compare DROPSY.]

Hypochondriasis.

Arsenic, in the aged, gives great comfort, especially when combined with opium (B.). *Ignatia*, is useful. Tincture, best (P.). *Cimicifuga*, of singular value in puerperal hypochondria, and in that accompanying spermatorrhœa, etc. (P.). *Aurum*, Chloride, gr. $\frac{1}{20}$ to $\frac{1}{30}$ ter die gives excellent results, when depression, vertigo, cerebral anæmia (B.). *Valerian*, quickly relieves flatulence (B.). *Asafœtida*, especially indicated in cases marked by flatulence and gloom (B.). *Potassium Bromide*, especially among female town-dwellers, but also in male (R.); effects are variable, relieves some, not others (Wa.). *Hyoscyamus*, when syphiliphobia (P.). *Opium*, stimulant doses of the tincture are of great importance (B.). *Caffeine*, the citrate (gr. j–v) has been used as a cerebral stimulant with advantage (B.). *Alcohol*, in hypochondriasis gives temporary relief; should never be given for its narcotic stimulant effects in these cases (W.). *Cocaine*, especially useful in cases marked by debility and nervousness, and in mental affections accompanied by depression; the fluid extract of Coca may be used, either alone or in wine (Br.). *Turkish Baths*, are useful for town-dwellers, with soft, flabby tissues, and mental depression (R.). [Compare MELANCHOLIA.]

Hysteria.

Ignatia, useful in many forms of hysteria, with feeling of suffocation, sensation as of a ball rising to the throat, convulsive crying, flatulence, etc. (P.). *Camphor*, in hysterical excitement (P.). *Musk*, for many anomalous and distressing symptoms (R.). *Chamomile Oil*, in the spasmodic and pseudo-neuralgic affections of hysterical women, a very excellent remedy (P.). *Cimicifuga*, in hysterical chorea, is rapidly curative (P.); for the headache (R.). *Asafœtida*, in hysterical convulsive affections, with flatulence and cough (P.); arrests paroxysm, valuable for flatulence (B.); removes headache, peculiar sensations in head, and flatulence (R.). *Valerian*, has great value, ℨss doses of fluid extract (B.); useful in most cases, especially those of hysterical dyspepsia (P.). *Zinc Valerianate*, especially at the climacteric age, for hysterical symptoms which can be traced to no particular cause (R.). *Ergot*, with iron and other tonics (see formula below), in cases depending on sub-involution of the uterus, with indigestion and anæmia (B.). *Nux Vomica*, of great use in middle-aged subjects, with flatulence, weight on head, flushings and perspirations (R.).

Atropine, for hysterical aphonia, gr. $\frac{1}{120}$ to $\frac{1}{80}$ morning and evening (B.). *Ether*, for the flatulence, and for the hysterical paroxysm in sudden seizures (B.). *Ammonia*, the aromatic spirits for the acidity and eructations (B.); the fetid spirit for flatulent colic, etc., may be given with great advantage in doses of ʒss–j (Wa.). *Potassium Bromide*, gives control, and prevents paroxysms. When verging on nymphomania large doses required (R.). *Iron*, a course often useful, especially when anæmia or uterine obstructions (R.). *Phosphorus*, in hysterical paralysis (R.). *Arsenic*, lessens mobility of nervous system, and improves nutrition (B.). *Opium*, gtt. j of laudanum with gtt. ij of tinctura nucis vomicæ 3 or 4 times a day, for flushings, weight on head, depression (R.). *Ovarian Compression*, has in many cases relieved recent hysterical contractions, and many other similar phenomena (Bourneville). *Electricity*, for aphonia, paralysis and anæsthesia, and to educate the nervous control. Electricity is the sworn enemy of hysteria. *Accessory Measures*. Occupation of mind and body. Removal from influence of friends. Complete abandonment of use of alcohol. The shower-bath, or cold bath, as an educator of the will, as well as to invigorate the body. Excitement to be avoided. The word "Hysteria" should never be applied to the case in the patient's hearing. Disorders of vision are often found at the bottom of hysteria; look for hypermetropia and astigmatism.

Prescriptions.

℞. Ext. Ergotæ, ... ʒj.
Ferri Sulphatis, ... ʒss.
Ext. Nucis Vomicæ, . . . gr. viij.
Hydr. Chlor. Corros., . . gr. ss.
M. Fiant pil. no. xxx. SIG.—One pill thrice daily. To improve digestion and anæmia. (B)

℞. Tinct. Asafœtidæ,
Tinct. Valerianæ Ammon.,
Tinct. Castorei, . . āā . . ℥ij.
Aquæ Camph., ... ℥vj.
M. SIG.—A tablespoonful or two every hour.

Ichthyosis.

Zinc, the ointment or glycerite of the oxide, especially the latter with a little camphor added to it, is a most useful application (Wa.); an ointment of the sulphate, ʒj to ℥j, found very efficient (Wilson). *Sodium Bicarbonate*, as ointment, gr. xv–xxx to ℥j, or lotion, ʒij–iij to Oj (Devergie). *Copper Sulphate*, gr. x ad ℥j Unguentum Sambuci, a useful application (Wilson). *Ulmus*, in decoction, used internally, has cured the disease (Wa.). *Cod-liver Oil*, applied locally with friction, has proved promptly curative. *Warm Baths*, may generally be employed with benefit (R.); alkaline and vapor baths, with sapo mollis; and inunctions of oil or simple ointment, to prevent fissuring of the new skin (Duhring); frequent alkaline baths, with internal and external use of oily preparations, as linseed and cod-liver oils, yield the best results (Bulkley).

Impetigo.

Arsenic, is very useful. [See ECZEMA.] The iodide in doses of gr. $\frac{1}{16}$ [illegible] has been employed with great success. Or Donovan's Solution, ♏v–x (Wa.). *Nitric Acid*, internally, frequently benefits (Wa.). *Glycerite of Tannin*, an excellent application (B.); during day, with poultice at night to remove scabs (R.). *Quinine*, *Mineral Acids*, when from imperfect digestion (R., B.). *Zinc*, the ointment of the oxide, after subsidence from inflammation (R.). *Sulphur*, internally, serviceable (R.). *Calcium Chloride*, gr. xv–xxx, daily, in some vegetable infusion, well spoken of (Wa.). *Mercury*. Citrine ointment dilute, locally, is an excellent application (Wa.); a very weak white precipitate ointment answers best in impetigo contagiosa, with a little carbolic acid lotion (1 [illegible] to 20) if it does not yield (Bulkley). Calomel to cover the floor of the pustules, after opening, evacuating and washing them out (Da Costa). *Laurel-water*, relieves itching (P.). *Grape-cure*, has proved excellent (P.). *Flexible Collodium*, or liquor guttæ perchæ, to cover the pustules, if located where they are liable to irritation (Da Costa). [Compare ECZEMA.]

Impotence.

s, no remedy more efficient. The pill of zinc phosphide the most
form (B.); gr. $\frac{1}{16}$ thrice daily. *Phosphoric Acid*, full doses, with
ris cantharidis, an effective combination, especially in impotence of
. *Chloride of Gold*, prevents decline of sexual power (B.). *Can-*
iron, is beneficial (B.). In large doses (gtt. xx–xxx), with iron and
acid or nux vomica (R.). Of doubtful efficacy (Wa.). *Cubebs*,
ictional trouble (B.). *Nux Vomica.* Drop doses of tincture in
tence (B.). In large doses when spermatorrhœa (R.). *Sanguina-*
ded aphrodisiac properties, but useful only in functional form (B.).
in relaxation and feeble erections, will often restore power. ʒss
ture bis in die (B.). *Ergotin*, hypodermically about the dorsal vein
en its enlargement and too rapid emptying is the cause of impo-
Cannabis Indica, is a useful remedy; the best combination for
npotence would be one of Cannabis, Nux Vomica and Ergot (B.).
Hydropiperoides, is a useful remedy in the functional form, erections
n watery and testes soft (B.). *Arseniate of Iron*, acts as a tonic to
and in full doses often benefits cases of functional form (B.).
as been brought forward as a genital stimulant, and a remedy for
out there is probably no ground for any confidence in such claims
ompare EMISSIONS, SPERMATORRHŒA, also List of Aphrodisiacs,
7.]

Prescriptions.

rseniatis, ... gr. v.
gotæ, ... gr. xxx.
xxx. Sig.—One twice daily.

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nn. Indicæ, ... gr. x.
gotæ, ... gr. xl.
cis Vom., ... gr. x.
. xx. Sig.—One pill night

Sulph., ... gr. xxx.
Sulph.. . . . . . . gr. ss.
gotæ, ... gr. xv.
rri Carb., ... gr. xlv.
l. no. xxx. Sig.—One pill 2
ily.

℞. Sanguinarinæ, ... gr. ij.
Ext. Ergotæ, ... gr. xx.
M. Ft. pil. no. xx. Sig.—One pill thrice daily.

℞. Tinct. Sanguinariæ, . . . ʒiij.
Ext. Stillingiæ Fl., ... ʒv.
M. Sig.—15 to 20 drops in water, thrice daily.

℞. Phosphori, ... gr. ss.
Ext. Nucis Vom., ... gr. vj.
Mas. Ferri Carbonat., . . gr. xl.
Ext. Gentianæ, ... gr. xxx.
M. Ft. pil. no. xxv. Sig.—One 2 or 3 times daily.

Inflammation.

especially in inflammation of respiratory organs, eruptive fevers, and
atory states of high temperature and sthenic reaction. Not in ady-
s, or continued fevers, except for hyperpyrexia. May be advantage-
ined with opium (B.); gives most brilliant results in many forms (R.).
icated in early stages of simple inflammatory fevers, in all inflam-
serous membranes, pneumonia, tonsillitis, acute rheumatism, ery-
Is especially adapted to the uses for which bleeding was formerly
P.). *Arnica* is antipyretic, large doses (ʒss of tinct.) in sthenic,
s (♏x) in asthenic inflammation (B.); in inflammation of serous
it has given good results (P.). *Belladonna*, in many forms no
re useful, notably scarlet fever, erysipelas, low fevers. Inflamma-
s, boils, carbuncles, etc., by atropine externally, belladonna inter-
en much fever, may be combined with aconite (B.); both locally
ally in inflammation of the eye; is effectual in inflammation which
o end in abscess (R.). In erysipelas, inflammatory sore throat,
s, gouty and rheumatic inflammation, cystitis, pneumonia, etc. (P.).

Gelsemium, especially inflammations of lungs and pleuræ, and in pneumonia (♏v–x of fl. extr. every two hours) (B.). In acute stage of acute gonorrhœa is valuable (P.). *Bryonia*, exceedingly valuable in pleurisy and other serous inflammations, especially pericarditis. After the aconite stage (P.). *Veratrum Viride*, when much delirium and arterial excitement, useful at beginning only (B.). In pneumonia, *Veratrine* is most valuable, also in acute rheumatism and generally as an antipyretic (P.). *Tartar Emetic*, in frequent minute doses, gr. $\frac{1}{16}$, renders incontestable service (B.). In pneumonia, tonsillitis, pleurisy, bronchitis, and other inflammatory affections (R.). *Pulsatilla*, in acute and subacute inflammations with muco-purulent discharges, especially of eyes, ears, and nasal passages (P.); also with aconite in epididymitis (Pf.). *Mercury*, in acute glandular inflammation of throat and neck, in ileo-colitis, iritis, syphilitic inflammations of serous membranes, laryngitis (B., R.). *Silver Nitrate*, locally in strong solution, gr. clx to ℥j of distilled water, painted over surface and beyond, after thorough cleansing and drying; no agent so safe, powerful or efficacious in subduing external inflammation (Higginbotham). A strong solution in nitrous ether is a most efficient application to check inflammation in superficial parts, as boils, felons, orchitis, synovitis, erysipelas, erythema, eczema, etc. (B.). *Iodine*, as liniment in vicinity of local inflammation to produce vesication (R.). *Sulphides*, especially that of calcium (doses $\frac{1}{10}$ gr.) appear often to arrest suppuration. After formation of pus they hasten maturation and circumscribe inflammation. In boils, abscesses, and deep-seated suppuration, they improve the condition and promote healing (R.). *Antipyrine*, *Kairine*, and other antipyretics. See under the title FEVER. *Alkalies*, especially ammonium and potassium salts, are very valuable in the stage of exudation (B.). *Astringents*, locally in inflammations of mucous membranes (R.). *Lead*, the liquor plumbi subacetatis dilutus as a soothing and astringent application to inflamed and erysipelatous surfaces (Wa.); to eczema and other inflammatory diseases of the skin (Pf.). For Leadwater and Opium formulæ see page 460. *Digitalis*, the German antipyretic, is especially useful in pneumonia, bronchitis, rheumatic fever and scarlet fever (B.). Aconite safer and better (R.); locally and internally is useful in inflammations, especially those of joints, of breast, erysipelatous and varicose: a fomentation of a teasp. of the dried leaves in half a pint of boiling water, or ʒj of tincture to the same quantity of water, applied by flannels to the part, will quickly subdue (Fairbank). *Quinine* in peritonitis (Tr.). It is indicated in most acute forms, unless objections occur (P.). Has power to arrest inflammation in formative stage. With morphine and in full doses (gr. xv–xx) may suppress many forms (B.). *Chloral*, excellent when temperature is high, much delirium; gr. v every 3 hours (B.). *Opium*, is important in most inflammations, but especially those of serous membranes; a full dose (gr. ¼ of morphine) at first, smaller doses after. Is especially curative in inflammation of intestines and peritoneum, and of cerebro-spinal meningitis, arachnitis, etc. (B., R.). *Saline Purgatives*, valuable as part of the denutrition treatment, and to diminish arterial tension (B.). *Salicylic Acid* is antipyretic, especially in septicæmic inflammation, and acute rheumatism, erysipelas, pneumonia (B.). Salicylate of sodium more soluble (R.). *Colchicum* often exercises a happy influence over certain acute inflammations, as bronchitis, conjunctivitis, etc., especially if occurring in gouty subjects (P.). *Cocaine*, locally in commencing inflammations of mucous surfaces, to constrict the bloodvessels of the part (R.). *Pilocarpus* gives good results in the exudative stage of pleuritis, iritis, keratitis, etc. (B.). *Cold*, by ice in bags, or cold water, a very useful agent. Heat, by hot water, fomentations, etc., often much better. *Ice*, in small pieces in a bladder applied to inflamed part (R.). *Water*, cold and hot baths and packing very useful in all inflammations (B.). *Alcohol* is constantly prescribed, and is of value in low states, if symptoms after its administration are ameliorated (B.). [See FEVER.] *Poultices*, useful in many inflammatory states, but often abused (B.). To check formation of pus and assist in maturation (R.). *Venesection*, when pulse hard, strong, full and frequent, a plethoric state of the system and great intensity of morbid action; if required the earlier it is done the better (Gross). *Leeches* very useful n many forms where sthenic reaction and plethora. Value of blood-letting robably due to derivative and counter-irritant effect (B.): a remedy of great ower for good or evil, now much neglected (Wa.). Local bleeding by leeches, ups, scarification, etc., should generally be preceded by some form of general epletion (Gross). *Aliment*, when no inflammation of digestive tract, use milk nd beef-tea alternately every 3 hours. No starches or fats. In intestinal inflam-ation, milk, eggs, animal broths, oysters, fish, but must be used with great aution. Skim-milk treatment (B.). Cod-liver oil in many chronic inflamma-ons, as of heart, lungs, kidneys, etc. (R.). [Compare the various titles, as RONCHITIS, PLEURITIS, etc., also the list of Antiphlogistics, on page 43.]

Prescriptions.

Tinct. Aconiti, ... ʒj.
Tinct. Belladon., ... ʒij.
M. Sig.—Three or four drops in water
ery hour. (B.)

Ammonii Chloridi, . . . ʒv.
Acidi Acetici,
Alcoholis, ... āā ʒx.
Aquæ, ... q. s. *ad* ℥x.
M. et fiat lotio. Evaporating and dis-
tient lotion.

℞. Antim. et Pot. Tart., . . . gr. ijss.
Magnesii Sulph., ... ℥ij.
Morphinæ Sulph., ... gr. j⅓.
Ac. Sulph. Aromat., . . . ʒss.
Tinct. Verat. Virid., . . . ʒjss.
Syr. Zingiberis, ... ℥ij.
Aquæ Destill., ... ℥x.
M. Sig.—Tablesp. every 2, 4, or 6
hours. Antimonial and Saline Mixture.
(*Gross.*)

[See pages 460 and 461 for Lotion and Liniment formulæ.]

Influenza.

Sulphurous Acid, by fumigation or inhalation, a few drops on boiling water as a spray, often controls (R.). *Tartar Emetic* has been recommended rongly, but is too depressant (Wa.). *Quinine* has been used beneficially roughout the disease, especially after the acute stage, for neuralgic pains Va.). *Ammonium*, the liquor ammonii acetatis, combined with nitric or loric ether, is often of great service (Wa.). *Sanguinaria*, used with much nefit (Wa.). *Cimicifuga* has been given with much success (R.). *Spiritus theris Nitrosi*, in doses of ʒj–jss, in any convenient vehicle, is a popular and ficacious remedy (Wa.). *Cocaine*, a 4 per cent. solution snuffed up nostrils applied by spray-producer, very efficacious in the early stage (R.). *Cubebs*, ss or ʒj doses of the tincture in ½-glass of linseed tea thrice daily, for the bsequent cough, often curing like a charm (R.). *Opium*, best avoided in rly stage, but later for the cough, with ipecac., gives great ease. Dover's owder, with nitre and lobelia is a good form (Wa.). *Potassium Nitrate*, nitre rgely diluted, as lemonade, ʒj–ij in the course of the day, proves highly seful (Wa.). *Turkish Baths* have been employed with marked advantage Wa.). *Hot Fomentations*, for headache (R.). *Benzoin*, the compound tincture, ss–j, inhaled from a pint of hot water frequently (Da Costa). [Compare RONCHITIS, CATARRH, HAY-FEVER.]

Prescriptions.

℞. Ext. Ipecac. Fl., ... ʒij.
Tinct. Opii Deod., ... ʒiv.
Tinct. Aconiti, ... ʒj.
M. Sig.—Five to ten drops every two
hours. For the bronchitis.

℞. Ext. Cimicifugæ Fl., . . . ℥ss.
Tinct. Opii Deod., ... ʒj.
Syr. Tolutani, ... ʒxj.
M. Sig.—Teasp. every four hours.

℞. Ammonii Chloridi, . . . ʒjss.
Morphinæ Sulph., ... gr. ij.
Tinct. Sanguinariæ,
Syr. Ipecac., ... āā ʒiv.
Mist. Glycyrrh. Co.,
Aquæ, ... āā ℥jss.
M. Sig.—Teasp. as required for the
cough. Each dose has of Morph. Sulph.
gr. $\frac{1}{18}$.

Insomnia.

Chloral, the best hypnotic (gr. xv–xx), quite unrivaled. Cautiously in delirium tremens, which see (B.). In many forms of sleeplessness (R.); acts best in cases which are of purely nervous type (Wa.); in combination with alcoholic preparations, especially if potassium or sodium bromides are present, it is apt to separate to the top as an alcoholate. See *ante*, page 165. *Croton Chloral*, ʒj may be given (R.). *Potassium Bromide*, when from cerebral overaction, gr. xv before each meal, and gr. xxx on retiring. Cumulative effect (B.). It increases hypnotic effect of hyoscyamus, belladonna, cannabis indica, ether and chloroform (R.). *Hyoscyamus*, an effective substitute for opium in children, ʒij–℥j of tinct. necessary, and without danger (B.); when opium disagrees (R.). *Belladonna*, hypnotic in some morbid states, especially those marked by prostration, low arterial tension, contracted pupils. Atropine, gr. $\frac{1}{120}$ to $\frac{1}{60}$ (B.). *Paraldehyde*, in doses of ♏xxx–l, is an efficient hypnotic with little or no depressing action on the heart (C.). *Ignatia*, for sleeplessness from nervous erethism, better than morphine (Pf.) *Gelsemium*, in simple wakefulness (B.); and in that of drunkards, mania and over excitement. (R.). *Coffee*, insomnia from lowering of nervous power, and chronic alcoholism (P.). *Opium*, Morphine the best form, gr. ⅙–gr. ss, when pain (B.). Codeine and Narceine, also hypnotic, should be given to act at natural time for sleeping (R.). *Sumbul*, ♏xxx–xl of tinct., with a little chloric ether, very efficient in the insomnia of chronic alcoholism (P.). *Tartar Emetic*, and opium, very effective when due to cerebral congestion, and when opium stimulates (B.). *Ether* or *Chloroform* in a full dose (R.). *Phosphorus*, nutrition inactive. Insomnia of the aged (B.). *Humulus*, a hop-pillow effective (B., P.); tinct. lupulinæ, ʒss–℥ss, as cerebral sedative (B.). *Cocaine* has been used with some success (Wa.). *Chamomilla*, ♏j of the tinct. every quarter-hour, an excellent sedative for children (A. A. Smith). *Cannabin Tannate*, in 8-grain doses, a good hypnotic (Fronmüller); very inefficient (W.) *Cannabis* is very uncertain in its action (R.). *Alcohol*, if from cerebral anæmia, a full dose of whiskey or brandy; or in some a glass of ale or beer answers better (B.). *Water*, a tepid bath just before retiring often effective. When head is hot, cold to it, and tepid bath to the body (B.). [Compare NERVOUSNESS; also the List of Hypnotics on page 27.]

Prescriptions.

℞. Paraldehyde, ... ʒijss.
Alcoholis (90 per cent.), . ʒjss.
Tinct. Vanillæ, ... ʒss.
Aquæ, ... ℥j.
Syr. Simplicis, ... *ad* ℥iv.
M. Sig.—A teasp. or two every hour until sleep is obtained.
(*Yvon's Hypnotic Elixir.*)

℞. Chloralis Hyd., ... ʒij.
Potassii Brom., ... ʒiij.
Tinct. Opii, ... ʒj.
Syr. Aurantii Cort., . . . ℥iij.
Aquæ, ... *ad* ℥ij.
M. Sig.—Teasp. dose. May be repeated if necessary.

℞. Potassii Bromidi, ... ʒiv.
Chloralis Hydrat., ... ʒiij.
Tinct. Asafœtidæ, ... ʒiv.
Syrupi, ... ℥vj.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Tablesp. every 2 hours until sleep is induced. In the insomnia of hysteria.

℞. Potassii Bromidi,
Chloralis Hydrat., . . . āā ℥ss.
Syr. Pruni Virgin., ... ℥j.
Aquæ, ... q. s. *ad* ℥ij.
M. Sig.—Teasp. in a winegl. of water. Repeat in one hour if necessary.

Intermittent Fever.

Cinchona. Quinine as prophylactic, gr. v–x each morning in black coffee; begin with gr. v, add gr. j each week (R.). In ordinary intermittents give 6 or 10 grain doses up to 20 or 30 grains, so as to have it all in 4 or 5 hours before the expected paroxysm; give the sulphate and in solution to get its full action (Da Costa). For acute ague, gr. x in sweating stage, and same 5 hours before next paroxysm, and gr. x–xv at the septenary periods, until the third [illegible]

assed. In pernicious form, gr. xx–xl are required, by stomach, rectum or
kin, to secure safety of patient. Best in combination with morphine, and with
ontinuous administration of arsenic during intermissions. May be given in
olution by rectum, or hypodermically (B., R.). Is almost specific in inter-
ittents when uncomplicated, and of recent origin (Wa.). *Chinoidine* may
e used as a substitute for quinine in doses twice as large (B.). *Cinchonine*,
inchonidine, *Quinidine*, the sulphates of these alkaloids are scarcely, if at all,
ferior to quinine as therapeutical agents. (Report of the Madras Commis-
on, 1866.) Average dose of each, gr. x (Wa.). *Salicylate of Cinchonidine*,
romises well as an antiperiodic (B.). *Opium*, as morphine, gr. $\frac{1}{6}$–$\frac{1}{4}$ hypo-
ermically, not only lessens the chill but aids the action of the antiperiodic; is
be strongly urged (Da Costa); is useful in the pernicious variety, in combi-
ation with quinine (B.). *Arsenic*, the best remedy next to quinine, especially
seful in long-standing agues, of quartan type (R.). Useful as adjunct to qui-
ine daily, to prevent relapse. Most important in chronic ague, with iron;
lso as prophylactic small doses of Fowler's solution (B.). *Capsicum*, the
esins of black and red pepper, as adjuvants chiefly (B.); promotes action of
uinine (Pf.). *Nux Vomica*, has been used with success, but now used as
djunct to quinine (B.); good in convalescence (P.); has antiperiodic value
ot inferior to quinine. Strychninæ gr. $\frac{1}{40}$. equals gr. j of quininæ sulphas
Wa.). *Hydrastine*, stands next after arsenic; same indications as quinine
B.); in doses of gr. ij–ix is strongly recommended (P.). *Pilocarpine*, gr. $\frac{1}{8}$
the muriate, in the cold stage, is strongly recommended by high authority,
excite profuse perspiration and thus lessen the attack (Da Costa). *Apiol*,
hen prejudice exists against quinine. Gtt. xv during an hour, in divided
oses, 4 hours before paroxysm (B.); is one of the minor remedies which often
rove successful in mild cases (Wa.). *Salicin*, as substitute for quinine, but
ferior (B.); grs. x–xl, in mild cases (P.). *Chloroform*, to prevent an impending
aroxysm; ʒj–ʒij (of spt.) before the chill, or by inhalation (B.). *Narcotine*,
r. ij–v ter die, is eminently antiperiodic. No drug (except quinine) cures
termittents so rapidly and surely, or with more freedom from disagreeable
ffects (Wa.); said to be superior to quinine (R.). *Nitric Acid*, full doses
very 4–6 hours (B.). *Sodium Chloride*, in large doses during the apyrexia,
viij–xij, may occasionally prove efficacious (Wa.). *Eucalyptus*, during con-
alescence (B.); has been successfully used in treatment of ague, ʒj–ij of a
incture (Wa.). *Carbolic Acid*, in 4-grain doses with infusion of ginger, cured
series of 8 cases which had resisted quinine (Wa.); its value established;
ss–ij in mint-water; or gr. $\frac{1}{4}$ in ♏xx of water, hypodermically (Tessier);
ombined with iodine is of great value in chronic malaria, and in acute cases
fter quinine has stopped the paroxysm (B.). *Mercury*, uncalled for in ordi-
ary cases; but hydrarg. cum creta, quinine and rhubarb of service in obstinate
ntermittents of children in tropical regions (Wa.). *Sodium Hyposulphite*,
gr. xv–xx every two hours is said to cure (R.). *Cascarilla*, *Chamomile*, *Quassia*,
used (R.). *Gentian*, is valued chiefly as vehicle (P.). *Ammonium Picrate*,
proved wonderfully effective in India, where 10,000 cases were treated there-
with (Clark). *Lemon*, in decoction, exceedingly efficient in preventing recur-
rence of the paroxysms after they have been broken up by the use of Quinine
Crudeli). *Emetics*, may cure many cases; one each morning will assist the
ction of quinine. Ipecacuanha preferred to antimony (R.); only at com-
encement, inadmissible if gastric irritation (Wa.). *Antimony*, at the onset,
nd continuously in mild, uncomplicated cases. Tartar Emetic, gr. $\frac{1}{3}$–$\frac{1}{6}$
ery 2 hours, has been followed by complete cures (Moore). *Antipyrine*, is
eless (Falkenheim). *Resorcin*, and similar agents, have no specific action,
erely controlling the pyrexia (Wa.). *Warburg's Tincture* is a remedy of
eat power, but produces such severe diaphoresis as to be dangerous to adyna-
ic subjects (Prof. Maclean). *Purgatives*, in the intermission, before using the
tiperiodic, is good practice; podophyllum, colocynth or jalap (Da Costa).
on is valuable in chronic cases; the system should be thoroughly saturated
th it (Da C.). *Ergot*, for the enlarged spleen (Da C.). [Compare the title
ALARIA; also the List of Antiperiodics on page 43.]

Prescriptions.

℞. Quininæ Sulph., ... gr. xxxij.
Mucil. Acaciæ, ... ʒ ij.
Syr. Eriodyctii Aromat.
(Parke, Davis & Co.). *vel*
Mist. Glycyrrhizæ Co., *vel*
Velatine, ... q. s. *ad* ℥ ij.

M. Fiat emulsio. Sig.—A teasp. contains gr. ij of Quin. Sulph. Suspension of the quinine without dissolving it makes the bitter taste less perceptible (Squire), and the Syrup of Yerba Santa covers the taste well. (*Potter.*)

℞. Ac. Carbolici, ... ʒ j.
Tinct. Iodi Comp., ... ʒ iij.

M. Sig.—4 drops every 4 hours in sufficient water. (B.)

℞. Massæ Ferri Carb., . . . ʒ j.
Ac. Arseniosi, ... gr. j.

M. Ft. pil. no. xx. Sig.—One thrice daily in chronic ague. (B.)

℞. Quininæ Sulph., ... gr. xl.
Ferri Sulph. Exsic., . . . gr. xx.
Ac. Arseniosi, ... gr. j

M. Ft. pil. no. xx. Sig.—One thrice daily. (B.).

℞. Quininæ Sulphat., ... gr. lxxx.
Ac. Sulph. Diluti, ... q. s.
Spt. Etheris Nitrosi, . . . ℥ iv.
Syr. Tolu, Aquæ, . . . *ad* ℥ ij.

M. Sig.—A teasp. contains gr. v of Quin. Sulph. (*Da Costa.*)

℞. Quininæ Sulphat., ... ʒ j.
Ac. Hydrobrom. Dil., . . ʒ ij.
Aquæ, ... ʒ xiv.

M. Sig.—A teasp. contains gr. iij¼ of Quin. Sulph. The acid directed prevents the unpleasant cerebral action. (B.)

℞. Quininæ Sulph., ... ʒ ss.
Pulv. Acaciæ, ... ʒ ss.
Syr. Zingiberis, ... ℥ iv.

M. Sig.—A teasp. contains one grain of Quin. Sulph. A good formula for children, the quinine being suspended, not dissolved.

℞. Quininæ Sulph., ... gr. xx[illegible]x.
Capsici, ... gr. xv.
Opii Pulveris, ... gr. iij

M. Ft. pil. no. xxx. Sig.—One to five pills as required. (*Piffard.*)

Intertrigo.

Bismuth, nitrate or carbonate, as dusting powder (R., B.). *Tannin*, the glycerite, excellent (R., P.). *Camphor*, added to dusting powders, to allay heat and itching (R.). *Lime-water*, to obviate irritating urine (R.). *Soap*, free ablution with, when caused by acid secretions; use greasy applications afterwards (R.). *Boracic Acid*, as ointment, ʒjss to ℥j of vaseline, a very useful application (Wa.). *Glycerin*, with tragacanth, etc. [See under HERPES for formula.] *Calomel*, as ointment, ʒj to ℥j, is especially useful (Wa.). *Zinc Carbonate.* Calamine is a good dusting powder; so also is the oxide or fuller's earth.

Intestinal Obstruction.

Opium, even ½-grain doses every 4 hours, for 2–4 days, arrests dangerous symptoms, and brings a painless purgation (Brinton, P.). *Morphine*, endemically (Wa.). *Belladonna*, often successfully employed (P.): gr. ¼–⅓ every few hours, when from want of tone and partial spasm (Tr.). *Strychnine*, occasionally beneficial; cautiously in acute cases (Wa.). *Mercury.* A full dose of calomel, followed in a few hours by castor oil, and a turpentine enema, affords relief (Wa.). *Caffeine* acts upon the muscular tissue and often proves of the utmost value (Wa.). *Senna*, the infusion, in doses of ℥j–iij, forms an efficient purgative (Wa.). *Purgation* to be refrained from (Brinton). *Enemata*, insufflation and surgical measures are often necessary. [Compare CONSTIPATION, INTUSSUSCEPTION, HERNIA.]

Intussusception.

Belladonna, gr. iv of extract in an enema, has been successfully used (Wa.). *Opium*, in full doses carried to narcotism, has been successful in many cases (Wa.); must be used freely to prevent inflammation (Macleod). *Effervescent Enemata*, have been employed with success (B.). *Tobacco Enema*, may o[illegible] ome, and has proved exceedingly effective, but is dangerous. Produces most epressing nausea. Not safe to use more than ℥iv of the infusion; ʒj–Oj (B.). *flation* of intestines with air (*Hippocrates*) seems a most reasonable mechan-al remedy. *Irrigation* by hydrostatic pressure is resorted to with success. equires care and gentleness (B.). Hot water (Wa.); ox-gall, gr. x–xxx in the olution used, is especially efficient in cases arising from partial paresis of the owels (Hawkins). The knee-chest position is the best during irrigation or in-ation. [Compare HERNIA, TYPHLITIS.]

Irritability.

Ignatia, in small doses diminishes, in large doses excites irritability of cerebro-pinal axis. The remedy *par excellence* (Pf.). *Chloral*, gr. v, 2 or 3 times a ay, in irritability with nervousness and restlessness (R.). *Chamomilla*, is an xcellent sedative for children, in doses of ♏j of the tincture every ¼ hour (A. . Smith). *Opium*, gives calm to the nervous system if used in medium doses. *trychnine*, in functional irritability of the nervous system. [Compare IN-OMNIA, NERVOUSNESS.]

Iritis.

Belladonna, locally and internally (R.); ♏v every 3 hours, also lotion (ʒj of xtract to ℥iv aquæ), is of great value (P.). *Atropine* (solution gr. iv ad ℥j) as a wide field of utility, as mydriatic (B.); should never be omitted (C.); is ssential in the treatment of every form, should be applied early in the case nd persevered in throughout its continuance (Lawson). *Mercury*, when of yphilitic origin, as it usually is (B.); the bichloride is of great service (R.). In lastic iritis of original severity, or in cases aggravated by improper treatment, nercury is imperative, gr. ij of blue pill twice a day, until blue line on gums C.). *Duboisine*, as substitute for atropine, is more rapid for effecting dilatation, ess irritating to the conjunctiva, and has less permanent after-effects (B.). *Turpentine*, in so-called "rheumatic iritis" is very successfully used; small epeated doses (P.). *Opium*, when much pain, an indispensable adjuvant. *Morphine*, hypodermically (C.). *Copaiba*, ʒij in mucilage, thrice daily, gives excellent results in iritis and sclerotitis, diminishing pain in 24 to 48 hours, and restoring sight (Hall). *Quinine and Iron*, when the patient is feeble or anæmic. *Irritants*, or astringents should never be employed (C.). *Surgical*. Paracentesis when increased tension. Corelysis when only one or two adjacent adhesions. Iridectomy. Complete functional rest to the eyes, by atropine and a andage with compression-pad, an absolute necessity during the whole period f treatment (C.). [Compare SYPHILIS.]

Prescriptions.

Hydr. Chlor. Corr, ... gr. j.
Potassii Iodidi, ... ʒj.
Tinct. Calumbæ, ... ℥ij.
Aquæ Destil., ... *ad* ℥vj.
M. Sig.—A dessertspoonful, in a wine-ass of water, 2 or 3 times daily.
(*Lawson.*)

℞. Ol. Terebinth., ... ℥iij.
Syr. Acaciæ, ... ℥jss.
Aquæ Cinnamomi, ... ℥ss.
M. Sig.—A teaspoonful 4 or 5 times daily.

℞. Extracti Belladon., . . . ʒj.
Ung. Hydrargyri, ... ℥vj.
M. Sig.—For inunction to brow.

Jaundice.

Mercury, in attacks with depression, sickness and coated tongue, gr. ⅙–⅕ gray powder taken at onset, and repeated three or four times a day, very luable (R.). As purgative in jaundice from both deficiency and excess of le, singularly enough (B.). Gray powder with ipecac, followed next morning castor oil, is well adapted to the jaundice of infancy and childhood (Wa.).

Mercurials and podophyllum are better avoided, especially in obstructive jaundice, unless very marked indications for them exist (Da Costa). *Celandine*, was formerly employed as deobstruent (P.); energetically affects the liver (Pf.). *Hydrastis*, useful if continued for some time, in jaundice from catarrh of ducts (B.). *Arsenic*, has been used with success in jaundice from catarrh of bile ducts after catarrh of duodenum. Better for jaundice of malarial origin (B.). *Nitro-Hydrochloric Acid*, internally, and acid bath to right hypochondrium; temperature of bath 96°, ℥iij–gall. j (B.); when jaundice depends on torpor of the liver, or is catarrhal in origin (W.); during convalescence, ♏v–x of the dilute acid in ʒj of a compound elixir of taraxacum before each meal (Da Costa). *Quinine*, when due to malarial miasm, or when periodic (B.). *Euonymin*, an hepatic stimulant of especial power (B.). *Podophyllum*, in catarrhal and malarial jaundice (B.); when stools exhibit no trace of bile, one dose has cured (Wa.). Best avoided, unless markedly indicated (Da C.). *Sodium Phosphate*, no remedy superior in jaundice from catarrh of gall-ducts; ʒj doses every four hours for adults: gr. x–℈j for children (B.). *Manganese*, in jaundice from malarial origin, or catarrh of biliary passages (B.). *Aloes*, for simple jaundice of an atonic kind (B.); when hypochondriasis (P.). *Rhubarb*, for above maladies in children; white or clay-colored pasty stools; skin jaundiced (B.). *Saline Purgatives* to depurate the upper bowel, as Rochelle salt; with alkaline baths, diaphoretics and diuretics (Da C.). *Ammonium Iodide*, gr. j–iij in water every 2 or 3 hours in catarrh of bile ducts and jaundice. Also *Ammonium Chloride*, with fluid extract of taraxacum (B.). The *Chloride*, in 20-grain doses every 4 hours, produces a decided change (Wa.). *Stillingia*, relieves jaundice and torpid liver following intermittent fever (B.). *Dulcamara*, employed with advantage (P.). *Iris*, in malarial jaundice and that from duodenal catarrh (B.). *Alkaline Mineral Waters*, especially in catarrh of duodenum or bile-ducts (B.). *Potassium Salts*. The *Chlorate* in chronic or asthenic jaundice. The *Sulphate* the most useful saline purgative in jaundice (Wa.). *Aliment*. No starches or fats. Milk, eggs, oysters, beef broth, broiled or raw beefsteak, or whitefish (B.). Plenty of green vegetables at each meal, use cold water freely, avoid all high seasoning in food, and all liquors. [Compare HEPATIC CIRRHOSIS, HEPATIC DISEASES, CALCULI.]

Joint Affections.

Aconite, for pains in inflamed joints (R.); the liniment locally in chronic arthritic swellings (Wa.). *Mercury*, the oleate in chronic inflammation of the knee (R.). Diluted Ung. Hydrarg. Ammoniat. ʒj to ʒiv at first, then ʒj to ℥j, by gentle friction 2 or 3 times daily, in chronic articular inflammations by far the best application (P.). *Rhus Toxicodendron*, internally and as lotion, is invaluable for subacute stiffness and aching of joints after acute rheumatic fever (P.). *Iodine*, ʒiij–vj ad glycerini ℥iij, aq. destil. ℥iv, in numerous obstinate cases of joint affections consequent on rheumatism (Wa.). *Ferric Iodide*, with *Iodine* locally, in scrofulous affections of the bones and joints (Wa.). *Iodoform* has been used with satisfactory results in scrofulous affections of the joints and bones by many continental authorities (Wa.). *Salicylic Acid*, ʒj with ʒiv of Lanolin, and Ol. Olivæ, q.s. to make a paste, applied locally and covered with cotton, or rubbed in once daily for 3 or 4 days, then omitted for a week, and again renewed, is of proven value in many obstinate cases of stiff knees, pains from so-called rheumatism, painful ankle and wrist-joints, etc. (Aulde). *Arsenic*, often serviceable in rheumatoid arthritis and nodosity of joints. Large doses continued necessary (R.). *Alcohol*, and water, equal parts, an excellent evaporating lotion (B.). *Silver Nitrate*, a strong solution in nitrous ether is the most efficient application to check inflammation in small joints if applied early to adjacent vascular parts (B.). *Cod-liver Oil*, in strumous subjects (R.): the remedy on which most reliance may be placed in scrofulous joint affections (Wa.). *Cold Douche*, *Galvanism*, *Turkish Baths*, for stiff joints (R.). *Digitalis*, as fomentation, ʒj of tincture to O½ boiling water, applied on flannel, has proved very efficient in acute inflammations of the joints (Fairbank).

urpentine, the liniment a serviceable application in chronic enlargement of
e joints (Wa.). *Sulphuric Acid*, as irritant ointment, ʒj of acid to ℥j of lard,
ry beneficial in chronic diseases of joints (Wa.). [Compare BURSITIS, COX-
GIA, GOUT, RHEUMATIC ARTHRITIS, RHEUMATISM, SYNOVITIS.]

Keratitis.

Atropine, renders great service by contracting vessels (B.). *Atropine* by
stillation, with enforced disuse, and a protective bandage, should be regarded
measures of course (C.). *Mercuric* and ferric perchlorides, with cod-liver
l, will accomplish all that medicine can do for interstitial keratitis in syphilitic
bjects (C.). *Calcium Sulphide*, proves most useful in doses of gr. $\frac{1}{10}$ to ¼,
rice daily, in sugar-of-milk trituration (Snell). *Arsenic*, *Potassium Iodide* or
romide, *Iron* or *Quinine*, for constitutional effects in vascular keratitis. Also
unter-irritation by iodine painted on the temples till soreness (C.). *Ferric
erchloride*, successfully employed in panniform keratitis. A large drop of the
lution dropped from a quill every second or third day (Wa.). *Eserine*, lowers
tra-ocular tension (B.). *Astringents* or *Irritants* (as alcohol in any form, zinc
lphate, silver nitrate, etc.), are entirely inadmissible (C.). *Iridectomy* is often
eneficial in severe vascular keratitis (C.). *Pressure-Bandage*, in severe sup-
urative forms, limits extent. *Water*, cold when inflammatory symptoms
arked: hot (90–100° F.) in non-inflammatory form, to excite inflammatory
action; should be discontinued when marked injection. [Compare CORNEAL
PACITIES.]

Prescription.

. Hydrarg. Chlor. Corr., . . gr. j.
Ammonii Chloridi, . . . gr. vj.
Tinct. Belladonnæ, . . . ʒij.
Aquæ Destillatæ, ... ℥viij.
M. et fiat collyrium.

Sig.—A teasp. in a winegl. of tepid water, to be applied frequently with a pledget of lint on the closed lids. In phlyctenular keratitis of children.

(*Turnbull.*)

Labor.

Ergot, when uterine inertia, after the first stage passed. Is dangerous if any
bstacle in front. Danger to child in paralysis of fœtal heart (B.). Is best
iven when head has passed the brim of pelvis (Wa.). *Anæsthetics*, in pro-
acted and painful labor; cautiously with primiparæ (B.); increase the risk of
ost-partum hemorrhage (W.). *Chloroform*, not to complete anæsthesia, lest
terine action be interrupted. Usually begin when os is dilated (Simpson).
hloral, of great value to relieve pain; does not interfere with the exhibition
f chloroform; should be given in 15-grain doses every ¼-hour till effect pro-
luced (Wa.); the best of all remedies for rigid, undilatable cervix, gr. xv every
o minutes for 3 doses, perhaps a 4th after an hour's interval (Playfair).
thyl Bromide, a rapid, sure and safe anæsthetic, particularly suited to labor
ases (Levis). *Opium*, facilitates dilatation, promotes expulsive power of uterus,
essens hemorrhage, stimulates longitudinal and oblique fibres of the os (Wa.).
imicifuga, exercises special action, similar to that of ergot; is less dangerous
o life of child and soft parts of mother (Wa.); for mental disturbance and
uppressed lochia (R.); as partûs accelerator in lieu of ergot, also to allay ner-
ous excitement after labor, and to check post-partum hemorrhage (P.). *Opium*,
full dose of Morphine, gr. ¼, in tedious labors with severe pains, will aid
atient greatly and promote progress of the child. No bad results ensue.
orphine, for relief of pains and after-pains, or painful complications (Wa.).
ypodermically in rigid os and cervix (R.). *Belladonna*, topically to uterus, of
reat service in long-protracted labors from rigidity of os and cervix (H.).
elsemium, quiets the "nagging" pains of the first stage; requires physiologi-
al doses (B); relaxes spasm in rigidity of the os (Wa.). *Quinine*, to strengthen
erine contractions; used by many in place of ergot (R.). *Cannabis Indica*,
e tincture gtt. xxx, as stimulant to uterine contractions, more prompt, less
sting, than ergot (Wa.). *Ipecacuanha*, after delivery; to promote natural

functions (R.). *Cotton-root*, as excitant of uterine contractions may be more energetic than ergot (P.). *Althæa*, the decoction, as vaginal injection in difficult labor (P.). *Sodium Borate*, excites activity of the uterus, and is well employed in tedious labor, where there is deficiency of uterine contraction (Rigby). *Amyl Nitrite*, has acted admirably in a case of hour-glass contraction of the uterus; seems to antagonize the action of ergot (Barnes). *Oil of Eucalyptus* is very valuable in effecting antiseptic midwifery (Wa.). *Mercury*. The bichloride, gr. vijss to a quart of hot water gives a $\frac{1}{2000}$ solution, probably the worst of all antiseptics for this purpose: is too dangerous for obstetrical use (Fleischman). [Compare ABORTION, AFTER-PAINS, FALSE PAINS, HEMORRHAGE POST-PARTUM, LACTATION, PUERPERAL CONVULSIONS,—MANIA,—FEVER,—DISORDERS.]

Lactation.

Pilocarpine, as a galactagogue, gr. ⅛ of the muriate in brandy on retiring, the patient to be covered well in bed. Is efficient in direct proportion to its diaphoretic and sialagogue effects, these being evanescent, but its galactagogue power remaining for weeks, an occasional dose only being required to spur up the secretion when flagging (Minges). *Belladonna*, internally or externally, or both in excessive lactation (R.). Atropine gr. iv–℥j aquæ rosæ on lint around the breast to arrest secretion of milk. Remove when fauces become dry and pupils dilated (B.). *Camphor*, locally to arrest the secretion; a saturated solution in olive oil or glycerin, is more efficient than belladonna (Wa.). *Potassium Iodide*, in 25 to 30-grain doses internally, for the same purpose, is very effectual (Rousset). *Calcium Phosphate* and *Hypophosphite*, in debility from over-lactation (R., Wa.). *Ammonium Chloride*, for the intercostal neuralgia of suckling women; gr. x–xx, every 3 or 4 hours (Wa.). *Quinine*, *Tannin*, are used to arrest the secretion (R.). *Alcohol*, as beer or porter, often useful in excessive lactation—not always (R.). [Compare ABSCESS, AGALACTIA, MASTITIS, NIPPLES, also the List of Galactagogues on page 49, *ante*.]

Excreted in the milk, when taken by the nursing woman, are the oils of anise, cumin, dill, wormwood and garlic,—turpentine, copaiba,—the active principles of rhubarb, senna, scammony, and castor-oil,—opium, iodine, indigo, antimony, arsenic, bismuth, iron, lead, mercury, and zinc. Acids given to the mother cause griping in the child. Natural salts, as a rule, and the purgative agents above-named, act as purgatives to the child, and potassium salts as diuretics. Turpentine, copaiba and potassium iodide given to the mother, can be detected in the urine of the child. Opium given to the mother may narcotize the child, and mercurials in the same manner may salivate it ((Br.). Atropine, hyoscyamine, the salicylates, and potassium sulphide, have also been found in the milk after their ingestion by the woman.

Prescription for Milk-Fever.

℞. Tinct. Aconiti, ... ♏ xx.
Antim. et Potass. Tart., . . gr. ij.
Spt. Etheris Nitrosi,
Syr. Simplicis, ... aa ℥j.
Aquæ Aurantii Flor., . . ℥ij.
M.

Sig.—A teaspoonful in a wineglassful of sweetened water, every two hours.
(*Fordyce Barker.*)

Laryngismus Stridulus.

Aconite, checks the spasm and relieves the croupous breathing (R.). *Belladonna*, promises to be of value (Wa.). *Atropine*, gr. $\frac{1}{100}$ in a goblet of water (60 doses), of which give a teasp. every hour or ½-hour, will give prompt relief (A. A. Smith). *Bromides*, when uncomplicated except with convulsions (R.). Full doses will suspend an attack, and moderate doses steadily continued, will prevent recurrence (B.). *Ipecacuanha*, an emetic dose to cut short an attack (B.). *Lobelia*, has been employed (R.). *Chloroform*, quickly cures the paroxysm, a few drops on a handkerchief sufficient (B.); may often be used with advantage (W.). *Nitroglycerin*, will speedily allay the spasm (B.). *Chloral*, gr. v–xv to prevent or arrest (B.). *Quinine*, given between attacks to prevent (B.); a most valuable remedy, but in small, repeated doses (P.). *Emetics*. Tartar emetic; mercuric sulphate (gr. iij–v) safer and better (B.). *Conium*, is valuable, carried to a point of physiological effect (B.). *Water*, wet pack to neck (B.); cold sponging twice or thrice daily more successful than anything else, with out-of-door exercise. Cautiously if hoarse voice indicates laryngitis (R.). [Compare CROUP, LARYNGITIS.]

Laryngitis, Acute Catarrhal.

Aconite, very valuable (R.); especially indicated in inflammatory states of respiratory parts; gtt. ss–j every half-hour till an impression is made on the fever, then every hour or two (B.). *Antimony*. Tartar emetic, gr. $\frac{1}{50}$, a very excellent remedy internally; larger doses in œdematous laryngitis, gr. $\frac{1}{12}$ with gr. iij of Dover's powder every 2 or 3 hours (Da Costa). *Iodine*, inhaled; also as counter-irritant painted over neck (B.). *Morphine*, small doses to allay cough (A.). *Sulphurous Acid Spray*, is vaunted (Wa.). *Leeches* to throat are valuable auxiliaries to general treatment in sthenic cases; or cupping at the nape of the neck (Wa.). *Rumex*, has selective action on the laryngeal mucous membrane. See page 345. *Zinc* or *Copper Sulphates*, as emetics, in large quantities of warm water, where œdema slight (A.); a solution of zinc sulphate, gr. xx to ℥j on sponge to larynx with aid of the laryngoscope if possible to use it (Da C.). *Scarification*, by Mackenzie's laryngeal lancet, of great service in the œdematous form (Da C.). *A Purgative and Diaphoretic*, with mucilaginous drinks, if given at the start may be sufficient (Da C.). *Iron*, Monsel's solution, 1 part to 2 or 3 of water and glycerin, an excellent local application (Da C.). *Heat*, by poultices or fomentations (A.). Hot-water stupes may succeed (Wa.). *Inhalations* of hot steam, with benzoin, the comp. tinct. gtt. x–xv to ℥j, with gtt. x tinct. opii, or hops, or conium, of great service (Da C.). *Tracheotomy* ought not to be delayed, if inhalations, leeches, and fomentations fail (A., Wa.): is especially indicated in sudden attacks of œdematous laryngitis, as those occurring in Bright's disease (Da C.). *Ice*, steadily applied in bags over the larynx, if tracheotomy refused, has succeeded in bad cases. Small pieces may be slowly swallowed (Da C.). [For Croupous Laryngitis, see CROUP, MEMBRANOUS; for Spasmodic Laryngitis, see CROUP, CATARRHAL; for Œdematous Laryngitis, see GLOTTIS, ŒDEMA. Compare also LARYNGISMUS STRIDULUS, PHARYNGITIS.]

Laryngitis, Chronic.

Iodine, painted over neck as a counter-irritant, and inhalation of its vapor B.). *Sulphur*. Sulphurous acid as spray in syphilitic or tubercular laryn- itis, or a solution of sodium sulphite (ʒj to the oz.) in water (B.); by inha- ation, spray, or fumigation (R.). *Carbolic Acid*, where long-standing hyper- mia with diminished secretion, ʒj–ij to the ℥ of glycerin is a most successful pplication (Morell Mackenzie). *Silver Nitrate*, powdered or in solution to hronically inflamed larynx, as in phthisis (R.); a solution of gr. x or xx ad j, applied with a brush by the aid of the laryngoscopic mirror (W.). Form- ly much used, but is objectionable (B.). Should be used with great caution, nd only when a particular point can be seen for it with the laryngoscope Da C.). *Ferric Perchloride*, solution gr. lx–cxx ad ℥j glycerini as local applica- n (A.). *Zinc Chloride*, gr. xx–xxx ad ℥j, in glycerin. Alternation of topical pplications, of great value (A.). *Copper Sulphate*, gr. xx to ℥j of water, cally twice a week (Da C.). *Bismuth*, the sub-nitrate by insufflation, is highly ecommended in the worst forms of laryngitis, even in that accompanying hthisis (Tr., Wa.). *Guaiacum*, as lozenges, very useful in mucous laryngitis A.). *Althæa*, as pectoral lozenges to relieve laryngeal irritation (P.). *Cubebs*, e berries chewed are very efficient in relaxation of the larynx following a cold or long speaking (Wa.). *Cocaine*, a 20 per cent. solution of the hydr[illegible]chlorate by spray, mop, or brush, is very efficient in many laryngeal affectio[illegible]s (Prosser James). *Benzoin*, in strumous laryngitis (Wa.); in chronic, benzo[illegible]n on hot coals, or inhaled from boiling water, of great service (Tr.). *Tannin*, [illegible]n chronic catarrh and ulcerations, a solution (gr. x–℈j–℥iv) applied by hand-b[illegible]ll or steam atomizer (B., A.). *Inhalations*, or spray, of the best agents ve[illegible]ry grateful (B.); air loaded with vapors of ammonium muriate by inhaler, said to be used successfully (W.); vapors from boiling tar, turpentine, etc., placed on hot water, or better by steam atomizer (Da C.); chloroform, hops, benzo[illegible]n, etc., by atomization (Walker). *Insufflation*, substances to be in small quant[illegible]ty, mixed with bland powder (B.) *Functional Rest* of voice often requisite, esp[illegible]cially in phthisical and syphilitic laryngeal ulceration (A.). *Chronic Laryng[illegible]itis* includes many disorders of the larynx, which of late years have been di[illegible]erentiated, as—thickened vocal cords (chronic laryngitis proper), laryngeal ulc[illegible]rs, polypi, cysts, cauliflower growths, tubercular and syphilitic laryngitis, etc[illegible], in all the voice being similarly affected. Dysphagia, as a concomitant sympt[illegible]m, is constantly indicative of tubercular laryngitis (Da Costa). [Compare CO[illegible]GH, PHTHISIS, SYPHILIS, DYSPHAGIA.]

Laryngotomy.

Laryngotomy is more quickly and easily performed on the adult than tracheotomy, being farther from the lungs and less dangerous. It is usually directed to be performed by cutting longitudinally through the skin, then horizontally through the crico-thyroid membrane, which may be felt as a soft depression, an inch below the pomum Adami. In urgent cases, however, Prof. Wood recommends a narrow-bladed knife to be passed horizontally through both skin and membrane at once, and then to enlarge the opening laterally to the required extent. The advantage of having a horizontal incision in the skin is the greater openness of the wound when the patient throws up his head under a sense of dyspnœa (D.). In *Laryngo-Tracheotomy*, the deep incision is carried downwards from the crico-thyroid membrane, through the cricoid cartilage and one or two of the upper rings of the trachea (Cl.).

Leprosy.

Anacardium Orientale (Oil of Cashew), has been much lauded. Investigation established that much of its success was due to hygienic measures and use of fresh meat as food (P.). *Arsenic*, with 5 or 6 times the quantity of black pepper, in esteem in India (Wa.). *Sarsaparilla*, as tonic and alterative, valuable (P.). *Gurjun* (Wood Oil), as ointment and emulsion, has been used with success in alleviating the disease, by Dr. Dougall, Port Blair, Andaman Islands. The ulcers of 24 lepers healed thereby. *Ferri Arsenias*, gr. $\frac{1}{8}$ daily, is used with success (Wa.). *Mercury*, the oint. of the red iodide, diluted 1 to 10, or gr. j of the salt to ʒv of unguentum, gives very good results (Wa.). *Diet*. Nutritious food, cleanliness, baths, will do much to prevent the manifestations of the disease (R.). *Chaulmoogra Oil*, see page 162, is credited with a few cures and many cases improved. The oil is mixed with Psoralea corylifolia as a liniment, and also used internally (Wa.). *Hoàng-Nàn*, is considered of utility by a number of writers on leprosy, and is given in combination with Alum 1, Realgar 2 or 1, and the drug 2 parts, the whole being made into 3-grain pills, one pill daily being given at first and gradually increased (Pf.). *Argenti Nitras*, is said to act as a tonic and alterative, and to control leprosy for a limited period (Pf.).

Leucocythæmia.

Alkaline Hypophosphites, have been used with more or less benefit (Wa.). *Digitalis*, in young subjects (B.). *Nitro-muriatic Bath*, should not be neglected, with tonics and nutrients (A.). *Iron*, is of little value (B.); large doses may do good in early stage, with careful diet, and *Ergot* to contract the spleen (Da Costa). *Phosphorus*, gr. $\frac{1}{50}$ increased to gr. $\frac{1}{30}$, has proved successful in several cases (Wa.). *Arsenic*, in as full doses as can be borne, may be of service though hitherto ineffectual (Gowers). *Galvanization* of the spleen causes improvement of the blood, increasing the number of its red corpuscles (Gowers); is curative in uncomplicated cases (B.).

Leucorrhœa.

Hydrastis, the fluid extract, undiluted topically, quickly improves in uterine and vaginal leucorrhœa (B.). *Pulsatilla*, 5-drop doses ter die for a few weeks; also a teasp. in a pint of cold or tepid water, as vaginal enema daily, when pain in loins, depression of spirits, loss of appetite, etc. (P.). *Silver Nitrate*, in solution locally, also tampon saturated with ʒj each of alum and bismuth, when leucorrhœa due to granular vaginitis (Parvin). *Balsam of Peru* and *Tolu*, internally (P.). *Glycerin*, is largely prescribed for vaginal leucorrhœa, and for erosions and ulcerations of the cervix uteri (B.); the best vehicle for other agents (E.). *Borax*, ʒj to Oj water as vaginal wash for the leucorrhœa of pregnancy (Parvin). *Cimicifuga*, is said to be useful (P.). *Copaiba*, has been used with success (P.). *Cocculus Indicus*, when sero-purulent discharge, pain in lumbar region (P.). *Carbolic Acid*, diluted, as injection (B.); for vaginal leucorrhœa (R.). *Bismuth*, with mucilage, as injection; or with cocoa-butter as suppository (B.). *Copper Sulphate*, in solution, as injection (R.). *Tannic Acid*, in chronic cases serviceable as injection, ʒss of tannic acid in ℥viij of claret wine (B.). If os ulcerated, a suppository of tannin and cocoa-butter to mouth of uterus (R.). *Iodo-Tannin*, an excellent application, ʒj of iodine to ℥j of tannic acid, a sufficient quantity to be packed dry around the cervix (B.). *Alum and Borax*, makes a useful injection in vaginal leucorrhœa (R.). *Belladonna*, with tannin as bolus where neuralgia or ulceration of os. When disease due to over-secretion of mucous glands about the os, and much pain present, inject sodii bicarbonas, ʒj; tinctura belladonnæ, ℥ij; aquæ, Oj (R.). *Potassium or Sodium Bicarbonate*, ʒj to Oj aquæ as injection, especially when discharge alkaline and copious (R.). *Pareira*, *Uva Ursi*, successfully used (P.). *Sumbul*, recommended in atonic form (P.). *Myrrh*, with iron or aloes, beneficial (P.) *Ergot*, said to be useful in some cases (R.). *Potassium Permanganate*, has no special advantage; is used in solution (gr. ij–℥j) (B.). *Potassium Chlorate*, ʒj to Oj of water as injection in simple cases (Parvin). *Iron*, the iodide, internally and externally has proven serviceable; the mistura ferri composita, when anæmia and general debility (Wa.). The styptic preparations, locally (B.). *Phosphates*, for the cachexia (B.). The calcium phosphate, gr. j–ij several times daily, of great value in checking profuse discharge (Wa.). *Injections*, water at 60° F. to prevent recurrence (R.). Hot water injections best tonic to pelvic vessels, to relieve venous congestion; use with elevated hips (E.) [Compare ENDO-METRITIS, UTERINE ULCERATION, VAGINITIS.]

Prescriptions.

℞.	Aluminis, ...	ʒj.
	Zinci Sulph., ...	ʒss.
	Sodii Boratis, ...	gr. iv.
	Aq. Rosæ, ...	℥viij.

M. Sig.—Injection. (B.)

℞.	Liq. Plumbi Subacet., . . .	℥jss.
	Ac. Carbolici, ...	ʒss.

M. Sig.—One-fourth to be added to a pint of water and used as an injection.

Lichen.

Aconite, sometimes useful (R.). *Mercury*, calomel and nitrate of mercury oint. mixed (also tar-oint. added), in patches of obstinate lichen (R.). *Silver Nitrate*, the nitrous ether solution painted every day or two over patch (R.). *Baths*, warm, or of sulphides (R.); sponging with alkaline lotions, diluted lead-water, fluid extract of grindelia well diluted, or solution of copper sulphate, gr. x to the ℥, in miliaria, or prickly heat (lichen tropicus); with dusting po ders of lycopodium, zinc oxide or starch, singly or combined (Hughes). *Pota sium Citrate*, or some other refrigerant diuretic, and light, unstimulating fo (Da Costa). [Compare ECZEMA.]

Lithæmia.

Lithium Salts, especially the citrate, gr. xx thrice daily, is very efficient (I Costa); the carbonate invaluable (Wa.); the bromide, in solution of citrate potassium, given after stomach digestion is completed, one of the very b agents (Aulde). *Pichi*, of great value in lithæmia with cystitis (Wyma *Arsenic*, in small doses, is also useful (Da C.). *Nitric Acid*, 10 minim do of the dilute acid in half-glass of water thrice daily, with an occasional dose pil. rhei compos. at bedtime, is the most efficient treatment for the class patients who will not diet themselves (Hughes). *Purgatives*, especially alkal mineral waters, to clear the portal system (Da C.). *Sodium Phosphate*, in la tive doses, ʒj thrice daily, gives good results. *Alkalies*, in biliousness; a the continued use of alkaline waters rich in potassium salts, for solutio calculi (B.) *Acids*, hydrochloric often of great service; also lactic acid, w faulty digestion and assimilation (Br.). *Potassium Permanganate*, prev calculi by converting uric acid into urea (B.). *Buchu*, combined with an al has been a beneficial remedy (P.). *Colchicum*, 15 ♏ doses of the wine, t or thrice daily; is very useful (Wa.). *Chimaphila* is believed to check secretion of lithic acid (P.). *Aliment*, farinaceous vegetables and acid f are suitable (B.). Alcohol in any form is poison to a lithæmic (Da C.). Su lent vegetables and fruits, occasional abstinence from animal food. High liv alcoholic liquors, and sedentary habits are injurious. Milk diet, and freq draughts of pure water also recommended. Removal to a locality where soft water can be procured, is often curative. [Compare CALCULI, DYSPE GOUT.]

Prescriptions.

℞. Lithii Bromidi, ... ℥ss–j
Liq. Potas. Citrat., . . . ℥iv.
Syrupi Simp. . . . . ℥ij.

M. Sig.—A teasp. in a wineglassful or more of water, 2 hours after each meal. Reduce after a week.

℞. Tinct. Belladon., ... ♏xviij.
Vini Colchici Rad., . . . ʒij.
Liq. Potas. Citrat., . . *ad* ℥iv.

M. Sig.—A dessertsp. well diluted, every 3 hours.

℞. Potas. Nitratis, ... ʒj.
Ext. Pichi Fl., ... ℥j.
Elixir Simpl., ... ℥iij.

M. Sig.—A teasp. every 2 hours.

℞. Vini Colchici Rad., . . . ʒij.
Ext. Phytolaceæ Fl., . . . ʒj.
Potas. Acetatis, ... ʒiij.
Aquæ, ... q. s. *ad* ℥vj.

M. Sig.—A tablesp. four times daily.

Locomotor Ataxia.

Belladonna and *Ergot* are highly recommended by Brown-Séquard (R. *Silver Nitrate*, when motor disturbances are very marked. Improved 1 in (R.); gives the best results in doses of gr. ¼ to gr. ½ thrice daily, withholdi it after a few weeks to prevent argyria. The *Oxide* may be used instead of t nitrate, in half-grain doses (Da Costa). Potassium Iodide, Corrosive Sublima or Chloride of Gold and Sodium, all in full doses, often retard the progress the disease (Da C.). *Physostigma* has proved beneficial (R.). *Phosphorus*, u ful, but may not cure (B.). *Hyoscyamine*, ameliorative, gr. $\frac{1}{32}$ gradually to $\frac{1}{15}$ (B.). *Electricity*, galvanic, relieves pain; faradic stops wasting of musc (B.); in stage of irritation the constant current (ascending) through spi column (R.). *Water*, one of the most efficient agents; friction with a cl dipped in water of 60–65° F., a cold compress to head; 4–8 minute bath of 7

75° gradually lowered to 60°, then shower-bath, frictions (R.). *Rest*, as complete as possible, must be insisted on; with good, nutritious diet, milk being desirable (Da C.). *Pilocarpine* produces general improvement if given in the incipiency, gr. j to ℥j of water, of which ♏xxx twice daily (B.). *Strychnine*, gr. $\frac{1}{60}$ in ʒj of syr. hypophosphitum, thrice daily, when the system is saturated with silver (Da C.). *Suspension* daily, by head, has seemed to give relief to pains and improve condition. Is known as Charcot's treatment, but discovered by Matchoukowsky, of Odessa, and carried out systematically by Hessing, of Pesth, before Charcot took it up. *Antipyrin*, relieves the pains remarkably.

Lumbago.

Cimicifuga, said to be more effectual than any other remedy (R.); has sometimes wonderful success; no indications can be given for it; ʒss–ij of fluid extract (B.). Curative (P.). *Rhus Toxicodendron*, in subacute muscular or tendinous rheumatism, worse at night; completely relieves some cases (Pf.). *Veratrum Viride*, the tincture useful (R.). *Aconite* in $\frac{1}{4}$♏ doses of tincture every two hours, with linim. aconiti locally (Wa.). *Iodides*, if referable to syphilis, mercury, copper, tin, or lead poisoning (B.). *Ammonium Muriate* is very efficient in myalgic lumbago, gr. xx thrice daily for 2 days or until signs of congestion of the nasal mucous membrane appear,—then to be replaced by Quinine, gr. v, thrice daily for a week (Waugh). *Antipyrine*, gr. vij, hypodermically, completely banished it in a very bad case at the Hotel Dieu, Paris. *Morphine*, hypodermically to relieve pain (B., R.); gr. $\frac{1}{6}$ with Atropine gr. $\frac{1}{80}$, hypodermically, will frequently cure lumbago in two or three hours (Da C.). *Capsicum*, a strong infusion applied on lint, and covered with oiled silk, very efficient in recent lumbago (R.); a capsicum plaster is a very efficient application. *Potassium Nitrate*, in ten-grain doses hourly or every two hours, when urine scanty and high-colored (R.). *Belladonna*, as plaster, very valuable for persistent lumbago remaining in a small spot (R.). *Turpentine*, in doses of ♏xx–xxx (carefully, lest strangury and nephritis), of greatest value when the bowels regular and urine clear and abundant (Wa.). *Ether Spray*, externally as freezing mixture (R.). *Guarana*, xv–xl-gr. doses removed severe chronic (Rawson). *Chloroform Liniment*, affords relief (Wa.). *Canada Balsam*, gr. v–xx, is useful, or *Burgundy Pitch*, as plaster (P.). *Acupuncture*, occasionally gives instant relief (B.). Not when high fever (R.). *Aquapuncture*, has been employed with extraordinary success (B.). *Heat*, by hot douche to seat of pain (B.); or by very hot poultices for three hours, then the skin covered with flannel and oiled silk; or a hot flat-iron (R.). *Galvanism*, the constant current (B.); is highly useful; faradization almost as successful as acupuncture (R.). *Strapping* from the thigh upwards with layers of adhesive plaster which overlap each other. Nothing is so instantaneously beneficial. *Diet*, should be generous and nutritive. Lemon-juice as a beverage. Absolute rest is of great importance. [Compare RHEUMATISM.]

Prescriptions.

℞. Collodii,
Tinct. Iodi.,
Spt. Ammoniæ,
āā part. æq.
Sig.—Paint over the part with a camel's-hair brush. (*Burggraeve.*)

℞. Ext. Cimicif. Fl., ... ℥ij
Ammon. Chloridi, ... ʒj
Aq. Laurocerasi,
Syr. Simplicis, . . . āā . . ℥j
M. Sig.—A teasp. thrice daily.
(*Potter.*)

Lung Diseases.

Aconite, is indicated in most acute congestions (P.); is especially indicated in inflammatory states of respiratory organs (R.); *Belladonna*, in ♏ doses of the tincture frequently, is of great benefit in pulmonary œdema, to retard exudation of serum and to counteract the failure of the heart (A. A. Smith). *Terebene*, is very valuable in many conditions. *Terpine Hydrate*, is still more efficient and more easily administered. (See under BRONCHITIS.) *Ammonium Acetate*, serviceable not only in bronchitis, but in the whole range of acute pulmonary complaints as occurring in children (Dessau). See under BRONCHITIS, for formula. *Veratrum Viride* renders important service in acute parenchymatous congestions (B.); gr. ⅙ of resin in pill when temperature and pulse are high. It tends to induce prostration, collapse, etc. (A.), *Blisters*. Flying blisters to chest, and perhaps along pneumogastric nerves in hypostatic congestion (R.). *Copaiba*, exercises a powerful influence over the pulmonary mucous membrane, and is beneficial in lung diseases generally, when attended with excessive secretion (Wa.). *Jaborandi*, is serviceable for the attacks of breathlessness attendant on lung affections, but must be watched lest collapse ensue (Berkart). *Liquor Potassæ*, in doses of ♏x–xv added to an ordinary expectorant mixture, is often attended with good results in congestions of bronchi and lungs, chronic bronchitis, plastic bronchitis, etc. (Walshe). *Cimicifuga*, is a useful sedative in many irritative affections of the lungs and bronchial tubes, relieving cough, improving appetite, and ameliorating the general condition (Wood). *Croton Oil*, as liniment, is a highly useful counterirritant in many chronic lung diseases, and even in the bronchitis of infancy (Park). *Cubebs*, in small and oft-repeated doses, is efficient in chronic bronchitis and other lung affections of old persons, checking the excessive secretion and gently stimulating the system (Wa.). [Compare BRONCHITIS, EMPHYSEMA, HEMOPTYSIS, PHTHISIS, PLEURITIS, PLEURODYNIA, PNEUMONIA.]

Lungs, Gangrene of.

Creasote, by inhalation, to obviate the fetor (R.). *Carbolic Acid* inhalations, are used with marked benefit (Wa.). *Mineral Acids*, especially nitro-hydrochloric, with *Quinine*, the main reliances in chronic pulmonary gangrene (A.). *Stimulants*, as malt liquors, with general tonic treatment, are necessary (A.). *Ammonium Carbonate*, one of the most reliable remedies; is best given in decoctum cinchonæ (Wa.). *Eucalyptus*, the oil with alcohol, equal parts of each, of which ʒj as inhalation by steam atomization, is useful (Wa.). *Turpentine*, the spirit on boiling water inhaled for fifteen minutes every two hours, successfully employed (Skoda). [Compare PNEUMONIA, PHTHISIS.]

Lupus.

Arsenic, in chronic cases, not of syphilitic origin (B.). Arsenious acid as caustic (R.). The best remedy in lupus of head and face (Wa.). The oleate of arsenic, in ulcerating forms, constantly applied, will destroy cell-infiltration in a mild and comparatively painless manner; is also well employed in the tubercular variety (Wa.). *Iodine*, useful, whether syphilitic or scrofulous; the tinct. or a glycerin solution (B.); as tincture or liniment to edges and around (R.). *Mercury*, as ointments in erythematous lupus, calomel ointment in scrofulous and tubercular lupus of children (R.). Calomel int., gr. j–ij increased to iv, will quickly check (Wa.). Emplastrum hydrargyri very efficient in lupus erythematodes and allied affections (Kohn). *Cod-liver Oil*, internally and locally (B.). *Lead*, liq. plumbi, with one or two parts of glycerin, applied warm after removal of crusts, in milder forms (R.). *Carbolic Acid*, as a mild escharotic (B.). *Zinc Sulphate*; dried, as caustic, freely dusted over surface, and a poultice to remove slough (B.). *Jequirity*, a most useful application (Shoemaker). *Sodium Ethylate* on absorbent cotton, is the best of all caustics, followed by the *Oleopalmitate of Bismuth* as a soothing and astringent application (Shoemaker). *Chromic Acid*, an efficient local application, gr. c—ʒj aquæ destil. (B.). *Phosphorus*, as substitute for arsenic (B.). *Silver Nitrate*, a weak solution gradually strengthened, in superficial forms (R.). *Cauterization*, with the actual cautery at white heat, after scraping out as much as possible of the diseased parts, so as to destroy the lupus cell. Seek to replace the lesion by a cicatrix, to prevent relapse in situ, and the development of the disease elsewhere. Internal remedies only useful for the general health.

Prescriptions.

℞. Iodi,
Potassii Iodidi, . . . āā ℥ss.
Glycerini, ... ʒj.
M. Sig.—Locally in Lupus.
(*McCall Anderson.*)

℞. Ung. Arsenici Oleat., . . . ʒij.
Ung. Simplicis, ... ʒj.
M. ft. unguentum. Sig.—Use constantly over the affected surface. If pain sets in Opium may be added. (*Shoemaker*).

℞. Hydrargyri Bromidi, . . . ʒjss.
Adipis, ... ʒv.
M. ft. unguentum. Sig.—To cover the part affected, using cod-liver oil freely, and the following solution internally. In tubercular lupus of the face. (*Hardy.*)

℞. Potassii Iodidi, ... gr. lxxv.
Sodii Chloridi, ... ℥ss.
Aq. Destil., ... ℥viijss.
M. Sig.—Tablesp. before meals, night and morning. (*Hardy.*)

Lymphangeitis.

Belladonna, the extract softened with glycerin, freely applied, is of great service; when pain is severe, a poultice may be applied over the extract for a few hours only (Wa.). *Lead*, liq. plumbi subacet. dil., as an external application, constantly applied, to soothe and restrain the inflammation (Wa.). *Iodine*, in strong tincture, around glands, to prevent suppuration (Roberts). *Quinine*, or *Salicin*, with alcoholic stimulants freely, in septic cases (Roberts). [Compare BUBO.]

Malaria, Chronic.

Quinine is less curative than when the infection is recent, but in periodical affections depending on the malarial cachexia it is of specific value, large doses being required (B.). *Salicylates* of quinine and cinchonidine are especially effective in chronic malarial disease (B.). *Arsenic* plays an important rôle in chronic malarial disease (B.); diminishes splenic engorgement, and combined with iron is rapidly curative of many affections due to the paludal miasm (Boudin); is a powerful prophylactic against malaria, and in chronic malarial poisoning, with frequent return of fever and neuralgia, the continued use of arsenic is of great benefit (Fayrer). *Iron*, the sulphate has decided antiperiodic power, and is particularly successful in anæmic subjects and in those with enlargement of the spleen (Wa.); it improves the anæmia of chronic malaria, and should generally be combined with arsenic (B.). *Iodide of Iron and Manganese*, the syrup in doses of ♏xx-xxx, is a successful remedy for chronic malarial infection, and the *Sulphate of Manganese* gives excellent results in jaundice of malarial origin (B.). *Cornus*, *Calumba*, and other bitters, are highly efficient, especially the first-named, in chronic malarial poisoning, and in convalescence after malarial fever (B). *Carbolic Acid* and *Iodine* combined are of great value in chronic malarial infection; both are highly antiperiodic, and the latter is the best substitute for quinine and the most active reducer of splenic enlargement (Gimwell). *Eucalyptus* is of high utility to reconstruct the damages in the organs of assimilation (B.). *Baths*, the vapor-bath and Turkish baths are efficient aids to medicinal treatment in breaking up chronic cases, and may of themselves cure such by inducing profuse perspiration (Da Costa). [Compare INTERMITTENT FEVER, REMITTENT FEVER.]

Prescriptions.

℞. Cinchonidinæ Salicylat., . ʒij.
Ac. Arseniosi, ... gr. j.
Ferri Sulph. Exsiccat., . . . gr. xx.
M. ft. cachets no xx. Sig.—One wafer thrice daily.

℞. Quininæ Sulph., ... gr. xl.
Ferri Sulph. Exsic., . . . gr. xx.
Ac. Arseniosi, ... gr. j.
M. ft. pil. no. xx. Sig.—One pill thrice daily.

Cornus,
Calumbæ,
Liriodendri,
Pruni Virgin., ... āā ℥vj.
Eupatorii,
Capsici, ... āā ℥iv.
Pulv. et misce. Sig.—A teasp. in cold or warm water, three or four times daily. A good tonic tincture may be made from the above combination. (B.).

℞. Tinct. Iodi, ... ʒij.
Ac. Carbolici, ... ʒj.
M. Sig.—Two to three drops three or four times a day in water.

℞. Ac. Arseniosi, ... gr. j.
Mas. Ferri Carb., ... ʒj.
M. ft. pil. no. xx. Sig.—One pill thrice daily.

Mania.

Stramonium, of value; allays irritation and induces tranquil sleep; wild and furious delirium, but intermittent; also in nymphomania (P.). Many facts seem to confirm its reported value (Tr.). *Daturine*, gr. $\frac{1}{100}$–$\frac{1}{60}$ hypodermically in acute mania, but is less useful than atropine or hyoscyamine (Wa.). *Duboisine*, gr. $\frac{1}{33}$ hypodermically in acute mania (Gubler). *Belladonna*, is useful, especially in monomania, with fixed hallucinations, though a large dose causes a temporary insanity (Tr.); one of the very best remedies in all hyperæmic conditions of the brain (P.). *Hyoscyamus*, in violent intermittent forms to procure sleep and calm violent delirium (R.); delirium with hallucinations but not congestion; milder and less inflammatory forms; also in hypochondriacal monomania (P.). *Veratrum Viride*, successfully combats the excitement in acute mania (B.). *Camphor*, has been used successfully; its action is uncertain (P.). *Opium*, and tartar emetic are satisfactory for many cases; also morphine hypodermically to induce sleep (R.); narcotic effect of doubtful utility; better in insanity with depression (P.); will not produce narcotism in many cases, even in 2-grain doses. *Cannabis Indica*, ʒj of tinct. with ʒj of potassium bromide, is recommended (R.). *Bromides* are used in puerperal mania, that of pregnancy, nymphomania and other forms (R.). The combined use of potassium bromide and tinct. of cannabis indica, in equal parts, ʒj of each thrice daily for weeks and months, has proved very efficient in acute and periodical mania, senile mania, and other forms (Clouston). *Chloral*, as calmative, hypnotic, has induced mental improvement, gr. v–xx (B.). *Coniine*, most suitable to acute mania, quiets muscular action (♏½–iij, or hypoder., commencing with ♏$\frac{1}{10}$). Very successful with morphine conjointly injected (B., R.). *Digitalis*, ʒss–ʒj of tinct., valuable in acute and chronic mania, especially when complicated with general paresis and epilepsy (Maudsley). Caution! watch the pulse for any marked intermittence (B.). A very valuable palliative in acute mania (Van der Kolk). *Ergot*, large doses, ʒss–j of fluid extract, to reduce excitement, shorten attacks, widen intervals between them, and prevent exhaustion, hence is very useful in recurrent and epileptic forms, and in chronic mania with lucid intervals (Crichton Browne). *Iron*, as a restorative, is frequently used in chronic mania with benefit, the tincture of the chloride in 5–10 minim doses (B.). *Gelsemium*, is more useful than conium in mania with great motor excitement and wakefulness; large doses required, ♏xv–xx of tincture. *Croton Oil*, as a purgative, ♏¼–⅓ every hour, as revulsive in mania from cerebral congestion (R.). *Cimicifuga*, is often efficiently used in cases of mania occurring during the puerperal or pregnant condition (R.). *Galvanism* of the head and cervical sympathetic, has produced distinct improvement (B.). *Paraldehyde*, as a hypnotic, in doses of ♏xxx–l, is often decidedly useful (R.). *Cold Douche*, in maniacal delirium, the patient being in a warm bath during the application of the douche to the head (R.). *Removal* from home, from sympathetic friends, and from surroundings connected with the origin of the malady, is a prime necessity to a cure. [Compare DELIRIUM, PUERPERAL MANIA.]

Mastitis.

Belladonna, Atropine locally (see LACTATION), or combined with morphi and chloral, when much pain (B.). Especially as liniment to check secreti of milk when inflammation is imminent (R.); or when distended by milk (P.). When inflammation has set in, continuous application of Belladonna for 24 hours often arrests it. It is also useful when an abscess has formed. Fomentations useful in addition, but skin must be dried well before the belladonna is rubbed in (R.); ♏v–x of tinct. internally as well (P.). *Camphor*, a saturated solution in glycerin, locally, in mammary congestion threatening abscess (Wa.). *Phytolacca*, has power to arrest inflammation of the mammæ and to prevent suppuration; the fluid extract in 10-minim doses internally, and the solid extract on a cloth to the inflamed breast (B.). *Conium*, the extract in small doses several times a day, of striking benefit in mastitis and impending abscess of breast (Wa.). *Calcium Sulphide*, internally in abscess, occasionally ncreases pain (R.). *Hyoscyamus*, as plaster, to relieve painful distention from milk (P.). *Stramonium*, fresh leaves as cataplasm to discuss indurated milk (P.). *Iodine*, tinct. and ointments to remove indurations of breasts after inflammation (B.). *Mercury* and *Morphine*, the oleate locally in mammary abscess (R.). *Tobacco*, leaves as poultice in abscess (R.). *Digitalis*, the infusion ocally as fomentation in severe inflammation of the breasts, causes it to yield speedily (Fairbank). *Ammonium Chloride*, ʒj ad Oj spt. rosmarini, as lotion on linen rags, kept constantly to the part, especially in induration, after abscess has suppurated (Wa.). *Tartar Emetic*, in small and frequent doses, given early, is beneficial (Wa.). *Oil* frictions in first stage of inflammation of breasts, from circumference toward the nipple (L.). *Rest*, by supporting mammæ with strips of plaster, and bandaging the arm to the side, to prevent motion (T.). *Sponging*, with alcohol (over proof) until part is cold; renewed if heat return. *Heat*, applied by a basin lined with flannel saturated with hot water, to relieve pain and prevent suppuration. [Compare ABSCESS, LACTATION.]

Mastodynia.

Dr. Tanner advises non-interference in simple cases of enlargement and enderness, which will spontaneously subside if let alone. In severe cases support by strips or bandage, if breast pendulous; belladonna ointment or liniments; amputation of mamma has been necessary. *Conium*, has specific anodyne action on the mammæ and generative organs. *Cimicifuga*, relieves nfra-mammary pains of uterine origin in spinsters. *Olive Oil*, 2 parts, to 1 of inct. opii, may be used by gentle friction to painful breasts after parturition (Parvin).

Measles.

Aconite, for febrile symptoms, and especially to arrest the catarrhal pneumonia (R.); a valuable remedy (P.); the best drug when fever is very high, ½-drop doses of the tincture every 2 hours (Da Costa). *Jaborandi*, with a hot bath, as diaphoretics, in cases of delayed eruption (Da C.). *Asclepias*, an infusion or decoction freely as a diaphoretic, to promote the eruption (W.). *Veratrum Viride*, has been employed (R.). *Pulsatilla*, for the catarrhal ophthalmia, nasal and intestinal catarrh; ʒj–ij of tincture to ℥iv water as wash (P.). *Ammonium Carbonate*, dissolved in a solution of the acetate, is much aunted. When feeble circulation, cyanosis, delirium, gr. v–x to ℥ss–℥j liq. ammonii acetatis (B.); gr. iij–vj or vij, every hour or two, in cinnamon-water r milk; one of the reliable remedies (W.). *Camphor*, the mixture, with liq. ammon. acetatis, excellent when cough and catarrh the most urgent symptoms (A.). *Ipecacuanha*, for cough and catarrh, gr. j–ij every 4 or 6 hours (A.). *Antimony*, preferred to ipecac by some (A.). *Quinine*, in small doses for the dynamia (gr. j–iij), or large (gr. xv) for hyperpyrexia, and catarrhal pneumonia, etc. (B.). *Carbolic Acid*, has been employed in several hundred cases with decided advantage; most useful at early stage (Wa.). *Cod-liver Oil* and *Iron*, o scrofulous children, a long course of such medication after convalescence (Da C.). *Purgatives*, must be given with caution (R.); the milder purging salts, as magnesium sulphate, to be preferred (A.). *Mustard*, as bath on sudden retrocession of rash (R.); often increases the fever without benefiting the pneumonia and other complications (A.). *Water*, cold affusion at commencement; packing, especially when retrocedent (R.); hot foot-baths for convulsions (A.); tepid bath with cold douche to head, if cerebral symptoms are severe (Da C.). *Oil Inunctions*, cocoa-butter very grateful, and reduces temperature. Also in roseola (B.). Hands and feet to be rubbed with a firm fat to remove heat and tightness produced by rash (R.). *Aliment*, low diet and slops; no animal food during whole course (A.). *Hygiene*, dark room, complete disuse of eyes, strict cleanliness (A.). [For Sequelæ see BRONCHITIS, COUGH, OPHTHALMIA, OTORRHŒA, PNEUMONIA, etc.]

Prescriptions.

℞.	
Ac. Carbolici,	
Ac. Acetici, ...	aa ʒj–ʒjss.
Tinct. Opii Deod., ...	℥j.
Spt. Chloroformi, ...	℥j.
Aquæ, ...	q. s *ad* ℥viij.

M. Sig.—A tablespoonful every 4 hours, until fever abates. (*Keith.*)

℞.	
Tinct. Tolutanæ	ʒij.
Syr. Senegæ, ...	℥ss.
Ac. Acetici, ...	℥jss.
Syr. Pruni Virg., ...	*ad* ℥iv.

M. Sig.—A teaspoonful as required for cough after convalescence.

Melancholia.

Aurum, gives excellent results; gr. $\frac{1}{20}$ to $\frac{1}{30}$ of chloride ter die, especially when cerebral anæmia coexists (B.). *Bromides*, sometimes afford relief which no other agents will; no indications (B.). Potassium Bromide for townspeople, especially women with unendurable despondency (R.). *Cocaine*, a useful tonic, especially beneficial in nervous affections accompanied by depression (Br.). *Cimicifuga*, in puerperal or uterine despondency, of singular value (P.). *Ignatia*, has soothing effect in great mental depression (P.). *Arsenic*, in melancholy of aged persons gives great comfort. Best with small doses of opium. Fowler's solution, gtt. ij; tinctura opii, gt. iij–v, ter die (B.). *Opium*, in stimulant doses of tincture, gives good effects (B.); especially when paroxysms of acute anguish and despair, or when suicidal impulse (Wa.). Morphine hypodermically is of great benefit in some persons who have a peculiar idiosyncrasy therefor (R.). *Camphor* has been highly recommended (R.). *Musk* and *Castoreum* are employed in melancholia with benefit (R.). *Cannabis Indica*, sometimes relieves (B.). *Phosphorus*, depression from over-work (R.). *Chloral*, as hypnotic, has been followed by marked amelioration and cure (Wa.). *Valerian*, in hysterical or suicidal melancholia, is often beneficial (Wa.). *Caffeine* has been useful (B.). *Iron*, as restorative. Tincture of chloride (B.). *Water-cure*, shower-bath, 15–20 seconds, or warm-bath, 95° Fah. for 30 minutes; the shower or cold douche may be usefully employed in certain cases where reaction takes place after it (Wa.). [Compare HYPOCHONDRIASIS, HYSTERIA.]

Meningitis, Cerebral.

Aconite, is as serviceable in this as in the other acute inflammations; during the stage of excitation, the tincture, gtt. ij with gtt. v of deodorized tincture of opium, every 2 hours, gives admirable results (B.). *Belladonna*, in all hyperæmic conditions of brain and spinal cord one of the very best remedies, especially during the period of excitement (P.). *Hyoscyamus*, valuable in subacute form (P.); for nervous irritability during convalescence (A.). *Gelsemium*, extremely useful; ♏v of fluid extract every 2 hours (B.). *Mercury*, as ointment gives good results in children (A.); Calomel in small, frequent doses, so as to bring the system under it quickly, a most valuable remedy apart from its purgative effects (Wa.). *Potassium Iodide*, has cured (Niemeyer), especially valuable in the tubercular form (B.). *Ergot*, the fluid extract in ʒss doses, with ʒss of potassium bromide, every 4 hours, to diminish the vascular excitement (B.). *Potassium Bromide*, in the convulsions following simple meningitis (R.). *Opium*, in small doses; by clinical evidence proved to be the best treatment, especially for the acute stage before exudation, or during the stage of excitation (B.).

When collapse, may sustain powers of life; with tartar emetic has proved most beneficial, but should be used with great caution, as it may do great harm (Wa.). *Bryonia*, exceedingly valuable for serous inflammations in stage of effusion (P.). *Pulsatilla*, valuable in the acute form (B.). *Purgatives*, as soon as possible, unless exhaustion. Calomel and jalap the most active and searching (A.). Croton oil as a derivative and revulsive; also locally to the shaven scalp, productive of the best results in tubercular meningitis (Wa.) *Venesection*, or arteriotomy (temporal artery) gives good results (B.); when high cerebral excitement and vascular action (A.). *Blisters*, on nape of neck if coma, after active symptoms are subdued (A.). *Water*. Cold water for hyperpyrexia (C.); pounded ice in bag or bladder, as a cap to the head (R.). [Compare HYDROCEPHALUS.]

Meningitis, Cerebro-Spinal.

Opium, no remedy so effective in small doses. Utility ends when effusion, stupor, and coma ensue (B.); large doses (Valleix), gr. j every hour in very severe cases (S.); has been used in France and Germany with much success (Tr.); is the best remedy of all, gr. j every hour for 4 days; even such doses will not narcotize (Da Costa). *Aconite*, useful combined with opium (B.); affects the cranio-spinal axis from 3d nerve to phrenics, the region where this disease is most manifest (Harley). *Gelsemium*, extremely valuable, ♏v of fluid extract every 2 hours, to maintain constant physiological effect (B.); efficient for the delirium. *Belladonna*, in all hyperæmic conditions of brain and spinal cord, especially during stage of excitement (P.). *Iron*, the tincture of the chloride, in 20–30 minim doses, every 2 hours, suggested by the similarity of the disease to erysipelas, has made many successful cures without leaving any sequelæ (Klapp). *Bromides* to guard the opium and enable the latter to be pushed, 20-grain doses every 4 hours (Da C.). *Hydrocyanic Acid*, dilute, ♏j–ij, with gr. iij–v of sodium bicarbonate, every 3 or 4 hours, for severe vomiting (Delafield). *Quinine* in large doses at the commencement (B.); has been exhaustively tried in this disease and failed (Da C.). *Potassium Iodide* for the sequelæ, a long course of iodides during convalescence is the best treatment (Da C.). *Cold* to the spine, the most satisfactory treatment (Radcliffe); to head and upper spine for 5 minutes only at a time, for the headache and tetanic symptoms (Da Costa). *Venesection*, or arteriotomy (temporal artery), probably of service, but cautiously (B.); leeches at back of neck and on temples, to relieve the terrible headache, if patient is strong and vigorous (Da C.). *Digitalis*, in early stage (Rummel). *Ergot*, one of the best remedies (B.). *Turpentine*, enema, as derivative (B.). *Stimulants*, in small quantities (A.). *Counter-irritation*, by actual cautery freely applied to back, alleviates pain (A.). *Water*, cold baths or wet pack for hyperpyrexia; warm bath in uræmia (B.); hot-water bottles or sand-bags to trunk and extremities to keep up warmth. Bath of 102–106° for short time only, then wrapped in blankets (A.). Heat to the body, except the head and neck (Da C.). *Aliment*, nutritious and suitable food at short intervals, day and night (A.); tonics with fresh air and good diet during convalescence (A.). *Ventilation* of dwellings, the best sanitary precaution when the disease is epidemic (Simon).

Prescriptions.

℞. Morphinæ Sulph., ... gr. ss.
Ac. Sulph. Aromat., . . . ʒj.
Tinct. Cinchonæ Co., . . *ad* ℥vj.
M. Sig.—Tablesp. every 2 hours, for a boy of 12 years old.
(*Meigs & Pepper.*)

℞. Potass. Iodidi, ... ʒiv.
Tinct. Gentian. Comp.,
Syr. Sarsæ Co., ... aa ℥ij.
M. Sig.—Teasp. thrice daily, to promote absorption during convalescence.

Meningitis, Spinal.

Aconite, is very useful (B.); with Ergot and an Opium impression to reduce the amount of blood in the vessels of the cord (Da Costa). *Potassium Iodide* see below. In the chronic form, with the bichloride of mercury when a specific history present (Hammond). *Belladonna*, strongly to be relied on, even when brought on by external violence (P.). *Bryonia*, in serous inflammations, when effusion, is extremely valuable (P.). *Purging*, by magnesium sulphate, combined with tinct. hyoscyami (A.). *Quinine*, when paralysis occurs, in 3-grain doses thrice daily, with ¼-grain doses of extract. belladonnæ, or 20-30 grain doses of potassium iodide, and flying blisters along the spine (Da Costa). *Opium* in some form must be used for pain (Bastian). *Mercury*, gr. $\frac{1}{16}$ of the bichloride, with increasing doses of potassium iodide, to promote absorption of inflammatory products, if the inflammation subsides (Bastian); a mercurial impression often benefits the paralysis (Da C.). *Cold*, by ice to spine is deemed necessary, and no doubt alleviates the pain, though heat would be a more rational application for the inflammation (Bastian).

Menorrhagia.

Opium, has specific action in reducing the uterine circulation, should be pushed, even to inducing habit, in severe cases (Lutaud). *Ipecacuanha*, in full emetic doses (Wa.); is excellent (B.); Ergot is better (P.). *Savine*, enlarged, relaxed, and passively congested uterus (B.). In 5-10 drop doses of tinct. in water every half-hour to three hours, has proved useful (P.); when due to want of tone in uterus (R.). *Ergot*, large spongy uterus; bromides better (B.). Ergotin gr. j or ij in glycerin and water, undoubtedly efficacious as hypodermic injection (P.); all forms (R.); minim-doses of the fluid extract are very beneficial (A. A. Smith). *Hamamelis*, has decided influence on venous system; of high repute (Pf.). *Arsenic and Iron*, when from anæmia (B.). *Cannabis Indica*, often successful (R.); gtt. v-x of tinct., thrice daily, productive of extraordinary success (Wa.); has a stimulant action on the uterine muscular fibre, and may be given in combination with Ergot (B.). *Iron*, when dependent on anæmia (B.). *Rue*, low vascular tonus; should never be used in the pregnant state (B.). *Oil of Erigeron*, in 10-drop doses, is efficient (Wa.). *Gossypium*, a favorite uterine hemostatic in many hospitals, in 30-minim doses of the fluid extract every four hours (Parvin). *Quinine*, has been recommended (R.); after Ergot it is the very best agent, in 6-grain doses every 3 hours (Parvin). *Digitalis*, very useful, especially when from heart disease, in plethoric subjects (B., R.); ℥j–jss of infusion as dose will arrest menorrhagia when unconnected with any disease (P., R.). *Aloes*, debilitated and relaxed subjects, with Iron (B.). *Cimicifuga*, passive, coagulated and dark (P.); for accompanying headache (R.). *Gallic Acid*, is very efficient (R.). *Potassium Chlorate or Bromide*, in doses of gr. xv thrice daily, combined with Ergot, has an almost infallible influence over uterine hemorrhage, unless caused by cancer, polypi, adherent placenta, or other similar affections (Tait). *Bromides*, usually arrest promptly (B.). That of potassium most useful in young women if loss occurs at natural period only; commence bromide a week before and discontinue when discharge ceases till a week before next time. If loss occurs every two or three weeks give bromide continuously, 10-grain doses, but more when organic changes in womb (R., Wa.). *Ammonium Chloride*, for headaches (R.). *Calcium Phosphate*, in anæmia from excessive menstruation (R.). *Magnesium Sulphate*, very small doses with a little dilute sulphuric acid and syrup, is exceedingly useful (Wa.). *Oil of Cinnamon*, in drachm doses (R.). *Water*, hot-water bag to lower dorsal and lumbar vertebræ (R.); cold sitz-bath, feet in warm water, especially valuable. 60°–65° Fahr. for 5–15 minutes, patient then quickly dried and put to bed. [Compare METRORRHAGIA.]

Prescriptions.

℞. Ext. Ipecac. Fl., ... ʒij.
Ext. Ergotæ Fl., ... ʒiv.
Ext. Digitalis Fl., ... ʒij.
M. Sig.—A half-teasp. to a teasp. as required until emesis. (B.)

℞. Ext. Ergotæ (Squibb's), . . gr. xij.
Ext. Opii Aquosi, ... gr. vj.
M. et div. in pil. no xij.
Sig.—One pill every hour, in profuse menstruation of atonic type.

Menstrual Disorders.

Aconite, gtt. j every half-hour to hour promptly restores discharge when sudden suppression from chill (P., B., R., Wa.); as emmenagogue (Tr.). *Pulsatilla*, often of the greatest value when menses scanty or delayed, or suppressed by fright or chill (P., B.). *Ignatia*, in suppression of hysteria (P.). *Savine*, a powerful uterine tonic; as emmenagogue certain, powerful, safe (P.). *Ferrum*, in anæmic subjects (B.). *Aloes*, as emmenagogue [vide AMENORRHŒA]. *Cocculus Indicus*, for irregular menstruation with colicky pains and scanty discharge. Should be given for a few days prior to and during period (P.); ♏ij–iij of a saturated tincture thrice daily. *Opium*, in suppression from violent mental emotions, a valuable remedy (Wa.). In many menstrual disorders opium proves invaluable, but must be cautiously administered lest the habit be formed. *Cimicifuga*, relieves heat and pains in the head, flushings of the face, pains in back and limbs, etc., when occurring as the result of menstrual perversion (Wa.). [Compare AMENORRHŒA, DYSMENORRHŒA, MENORRHAGIA, CLIMACTERIC DISORDERS.]

Mentagra.

Mercury, the oleate, or the bichloride, gr. ij to ℥j water, applied as lotion after each epilation (R.). Citrine oint. extensively employed (Wa.). *Sulphurous Acid*, with an equal part of glycerin, is an efficient application (Jenner). *Arsenic* has a more or less powerful influence, used internally in doses of ♏v of liquor arsenicalis thrice daily (Wa.); the oleate of arsenic is an efficient local application. *Sulphur Iodide*, as ointment ʒj to ℥jss, is efficient, with Donovan's solution internally (Sir E. Wilson). *Copper Sulphate*, as lotion, ʒj to ℥xvj of water, with ℥ss of zinc sulphate, and ℥jss of aquæ laurocerasi (B.).

Metritis, Acute.

Opium, locally, in suppositories or enema is more effectual than if administered internally (Wa.). *Aconite*, is invaluable in early stage of simple inflammatory fevers (P.). [Compare PUERPERAL FEVER.] *Heat*, to the feet, and by large poultice to the abdomen. Also hot water vaginal injection literally for hours, if possible; repeated at short intervals, from a Davidson syringe. The only means of aborting an attack of cellulitis (E.), which is the condition generally present in cases which are usually supposed to be ones of acute metritis (Playfair). *Turpentine*, as hot epithems; few measures are more generally serviceable (Wa.). *Linseed Poultices*, produce great relief to pain and favorably affect the course of the disease (Duncan). *Leeches*, to the hypogastric region, may be required in patients of full habit. [Compare PUERPERAL FEVER, PUERPERAL METRITIS.]

Metrorrhagia.

Ipecacuanha, possesses considerable energy in arresting flooding (P.); in full emetic doses, gr. xx in evening, followed by an acidulated draught in the morning (Wa.). *Hamamelis*, when persistent oozing (R.). *Ergot*, the most valuable; full doses, repeated every hour or so (R., P.). [See MENORRHAGIA for formula.] *Savine*, 5 to 10-drop doses of tincture in cold water every ½ hour to 3 hours (P.). *Iron*, styptic preparations as injections (B.). [See HEMORRHAGE, POST-PARTUM.] *Opium*, has specific action on the uterine circulation (see *ante* page 296), and should be given freely in intractable cases of metrorrhagia from uterine fibroids or cancer, in which the establishment of the opium-habit is often advisable (Lutaud). *Cannabis Indica*, often arrests, especially when at climacteric; tincture gtt. v–xx ter die (P.); has had extraordinary success in number and rapidity of cures (Wa.). *Sulphuric Acid*, sometimes very effective, especially when due to fibroid or polypus. Ac. sulph. dil., gtt. v–xx, well diluted (B.); long extensively prescribed (Wa.). *Cinnamon*, is used with good effect (P.); has a specific action on the uterus (T.). *Digitalis*, in plethoric subjects. The infusion best, a tablesp. bis die (B., P.); the effect is prompt and decided (Wa.). *Magnesium Sulphate*, often succeeds (B.). *Senegin*, in 2-grain doses, successfully employed (P.). [Compare AMENORRHŒA.] *Ice*, to abdomen, or within the uterus (B.); ice in every form first thing to try (Wa.). *Rest*, absolutely necessary. Dry cupping over sacrum is found useful (R.). [Compare MENORRHAGIA, UTERINE TUMORS.]

Prescription.

℞.	Ext. Ergotæ Fl.	℥ss.
	Ext. Senec. Aur. Fl. . . .	℥j.
	Ext. Viburn. Prunif. Fl., .	ʒj.
	Ol. Myristicæ, ...	♏xx.
	Syr. Simplicis, ... *ad*	℥vj.

M. Sig.—A dessertsp. every ¼ hour until relieved, then reduce dose. Keep the head low, and apply cold over hypogastrium.

Miliary Fever.

Aconite, for the hyperpyrexia (R., P.). *Cooling Drinks*, purgatives and antiphlogistics, in mild cases; malignant ones sometimes occur, and are dangerous (A.). *Lime-water*, applied by sponging, is very useful; or a lotion of zinc oxide suspended in lime-water, gr. xl to ℥j, painted on the affected parts of the skin, and permitted to dry thereon (E. Wilson).

Muscæ Volitantes.

Potassium Iodide, very effectual in curing muscæ depending upon hepatic derangement (Wa.). *Valerian*, often found curative (Wa.). *Muscæ Volitantes* are due to shadows cast on the retina by fibrillæ floating in the vitreous body, and are most visible to myopic persons. They do not merit attention unless very abundant, or steadily increasing (C.). Rest of the eye necessary. Neutral-tint glasses may be worn to render the muscæ less visible, if troublesome.

Myalgia.

Arnica, the best agent for contused muscular fibre; also for shake, concussion, shock. ♏v–x every 2 or 3 hours in water (P.); a few drops of tincture internally removes stiffness, after packing with cold, wet sheet (R.). *Cimicifuga*, often succeeds wonderfully, as often fails; no indications for its use (B.); general bruised sensation (R.). *Ammonium Chloride*, in 10 to 20-grain doses, the most efficient remedy (Anstie); is effective (R.). *Veratrine*, the ointment externally may control (B.). *Belladonna*, as liniment, is often successful (R.). *Gelsemium*, frequently cures but large doses are necessary, ♏v–xx of the fluid extract every 3 hours (B.). *Coca*, to relieve the sense of fatigue (P.). *Opium*, by frictions or poultices (R.). *Iodine*, ointment for pain and tender muscles of the chest, when skin may be pinched without pain (R.). *Ammonium Muriate*, is very efficient. (See LUMBAGO.) *Xanthoxylum*, externally and internally, has a deserved reputation (B.). *Chloroform Liniment*, with friction, often affords great relief (Wa.). *Firing*, sometimes very beneficial (B.). *Packing*, with dripping wet sheet (R.). *Counter-irritation*, by firing, aquapuncture, acupuncture (B.). *Electricity*, the constant current (B.). *Baths*, Turkish, in aching muscles, from over exertion (R.). *Poultices*, very hot, followed by applications of lint and oilskin (R.). *Rest*, is *the* remedy of course (Wa.). Rest and support to weak muscles important till they regain their tone; especially in painful muscular affections following prolonged or excessive exertion, or in the soreness or stiffness which occur during convalescence from any long illness, or accompanying general debility. These are generally better after repose, but increase with fatigue. [Compare PLEURODYNIA, LUMBAGO.]

Myelitis.

Belladonna, is decidedly effective, especially when brought on by external violence (P.). *Ergot*, most successful; large doses are necessary (B.). *Electricity*, in chronic, not in recent form (B.). *Silver Nitrate*, in chronic inflammations of the cord, one of the few remedies which are ever of service; gr. ¼–½ (W.). *Phosphorus*, of marked benefit in myelitic paraplegia from excessive venery (W.). *Water-cure*, ice-bag to spine, feet in hot-water; or better, hot douche to spine (B.). *Cold*, externally, by ice-bags, along the spine, with cupping or leeching if much localized pain or tenderness; spoon diet and a sparing amount of stimulants, also copious warm enemata to relieve the bowels and act as derivatives. Little, if anything, is to be done with mere drugs. Posture should be prone, or on side; absolute rest (Bastian). [Compare MENINGITIS, SPINAL.]

Myopia.

Atropine, by daily instillation, systematically, for the purpose of sacrificing either the convergence or the accommodation, in cases where failure of the internal recti occurs, the disability assuming the form of muscular asthenopia (C.). *Glasses*, properly adjusted, should be worn from the commencement.

Nævus.

Ferrum Perchloride, injected, is effectual; but dangerous when applied thus to nævi about the head (Wa.). *Creasote*, pencilled over twice a day, may remove nævi (Wa.). *Chromic Acid*, as escharotic, or local application, gr. c ad ℥j aquæ destil. (B.). *Electrolysis*, or galvano-cautery, to remove nævi (B.). *Nitric Acid*, strong, as escharotic for small superficial nævi, followed by ol. olivæ (B.). *Zinc Chloride*, *Iodide* and *Nitrate*, locally, especially the first named (R.). *Setons*, threads passed across the growth in various directions, to produce suppuration; when pus appears the threads should be removed. *Sodium Ethylate*, prepared by adding the metal sodium, piece by piece, to absolute alcohol in a wide-mouthed bottle; the crystalline substance found deposited after effervescence ceases is an excellent caustic for nævi; painted over them it causes a rapid eschar, and usually gives but little pain (Richardson). *Mercury*, the Acid Nitrate an excellent caustic for removing moles from the face (Thomas).

Nails, Ingrowing.

Liquor Potassæ, a solution (ʒij–℥j) on cotton-wool in ingrowing toenail, to margin of nail at ulcerated surface, to soften the nail (B.). *Glycerin*, or *Silver Nitrate*, on a fold of lint, to the ulcerated surface (C.). *Lead Carbonate*, a piece softened between the fingers, and applied as plaster beneath the fungous cushion, cures in a few days (Tr.). *Paring* the nail, after softening in warm water, and cutting a V-shaped incision in centre of nail; the ingrowing portion should not be cut.

Nasal Affections.

Ammonia, by inhalation, in pain and inflammations of nose and frontal bones (R.). *Potassium Iodide*, large doses (gr. xxx–lxxv daily), valuable in syphilitic affections of the nose (Wa.). *Glycerite of Tannin*, to excoriations of inside of nose, after measles, scarlatina, etc. Also for impetiginous eruptions of inside, most severe where hair grows, epilation sometimes needful. Also in discharge of greenish, black, stinking mucus (R.). *Glycerin of Starch*, or *Zinc Ointment*, applied often, a good supplementary application (R.). *Hydrastis*, in chronic catarrhal conditions and nasal ulcers, used internally and externally, with great benefit (P.). *Pulsatilla*, may be employed both internally and externally in nasal inflammations (P.), and in acute inflammation of nose (B.). *Cod-liver Oil* for chronic discharge (R.). *Injections*, by nasal douche, are used with benefit in catarrhal states (Wa.). *Zinc Chloride*, gr. ij to the ℥, or the Sulphocarbolate, gr. v to the ℥, as solutions locally by cotton-wrapped probe to diminish sensibility of the nasal mucous membrane (Sajous). *Cocaine*, has many applications in treatment of nasal affections; a 4 per cent. solution by mop or spray will empty the engorged venous sinuses, and is very useful in acute catarrh, hay fever, etc., also in posterior and anterior rhinoscopy (R.). [Compare ACNE, CATARRH, EPISTAXIS, HAY FEVER, INFLUENZA, OZÆNA, POLYPUS, SNEEZING.]

Nausea.

Ipecacuanha, has no rival in sickness of pregnancy, scarcely less useful in that of chronic alcoholism. Very small doses, gr. $\frac{1}{32}$ equals ♏j of wine (P.). *Pulsatilla*, in dyspeptic nausea, with coated tongue, flatulence, sick headache (P.). *Cocculus Indicus*, in cephalic nausea, violent but ineffectual efforts at vomiting (P.). *Calumba*, in nausea of languid stomach with flatulence, has considerable reputation (P.). *Cinnamon* or *Cloves*, will check nausea (P.). *Nutmeg*, the simple powder in wine (P.). *Pimenta*, *Pepper*, *Peppermint*, relieve (P.). *Tartaric Acid*, as effervescing draught, with a few drops of tinct. opii, tinct. calumbæ, or hydrocyanic acid added, when from morbid gastric irritation (Wa.). *Cold Compress* or *Ice-bag*, over the stomach very useful. *Bismuth Subnitrate*, or the Liquor Bismuthi, when the salt in substance disagrees, is a remedy of established value in nausea and vomiting arising from gastric disorders; may be combined with Hydrocyanic Acid (Wa.). [Compare VOMITING, VOMITING OF PREGNANCY, SEASICKNESS.]

Necrosis.

Sarsaparilla, a very useful medicine in diseases of the bones (P.). *Rest*, in a "Salter's swing," with poultices, water-dressing, or stimulating lotions, to aid work of repair (Cl., Hilton). Tonics, nutritious food, baths, good hygiene, all are necessary adjuncts to local treatment (Andrews). *Acid Solutions*, of no use as solvents, may be employed with benefit for detergent and alterative effects to expedite the sloughing and restorative processes (Gross). *Operation* to remove sequestrum is generally necessary; or resection of the devitalized bone, the latter in young subjects greatly exhausted, where delay would endanger life. (Gross). *Potassa cum Calce* introduced into fistulæ, to convert them into large openings, permitting the removal of diseased bone (Kirkpatrick). [Compare CARIES, BONE DISEASES, SYPHILIS, SCROFULOSIS.]

Nervous Affections.

Arsenic, of especial value in nervous affections resulting from malaria, in which large doses are required; ♏x of Liq. Arsenicalis, increased to ♏xxx thrice daily (Wa.). *Asafœtida*, is a remedy of much value in nervous affections connected with uterine derangement, also in dyspeptic hypochondriasis and other nervous affections; may be combined with bitter tonics and mild aperients (Wa.). *Potassium Bromide*, takes precedence in epilepsy, epileptiform convulsions, hysterical convulsions and spasms, tetanus, etc., is of great value in chorea, insanity, acute mania, insomnia, delirium tremens, some forms of neuralgia, and the numerous symptoms of vaso-motor disturbance, such as—numbness, coldness, deadness, pricking sensations, indefinable but distressing sensations in abdomen, hypogastrium or epigastrium; feelings similar to rigors, with anxiety, palpitation or fluttering of the heart,—all due to interference with the local circulation (Reynolds). *Valerian* and *Valerianates*, are thought to exercise some special influence over nervous affections, especially the Valerianate of Zinc, in half-grain to grain doses in pill, or the Ammoniated Tincture of Valerian, from which every good that can be expected from the valerianates will be more certainly obtained (Wa.). *Sumbul*, acts as a nervous stimulant, and is especially efficacious in neurotic migraine, also in hysteria and the obscure paralytic affections associated therewith (Wa.). *Caffeine*, is of signal value in neuralgia, hemicrania and other nervous affections (Shafter); grain-doses in solution hypodermically, afford great relief in dorso-intercostal neuralgia attending shingles, insomnia, etc. (Anstie). *Cocaine* is a powerful nerve stimulant, destroying the sense of fatigue, and often evincing marked analgesic power in neuralgiæ. Is effective in melancholia, hypochondriasis, etc., as well as locally in nerve pain over a limited area. It acts as an excitant upon the central nervous system (R.). *Opium* is a remedy of marked value in insanity, melancholia, mania, and all nervous affections accompanied by pain (Wa.); gives general repose to both body and mind, is of decided value in diabetes, and produces marked improvement in melancholia and despondency (R.). *Lupulin*, is peculiarly useful in nervous affections when Opium cannot be tolerated, especially in chronic hysteria attended with morbid vigilance, 10-grain doses every 6 hours afford great relief, without causing any unpleasant symptoms (Eberle). *Santonin*, in convulsions, epileptiform seizures, and affections regarded as choreic, etc., the result of reflex irritation from worms (Wa.). *Phosphorus*, of occasional utility in affections of the nervous system induced by mental exertion or over-excitement. Danger from its use is its liability to produce fatty degeneration of the internal organs (Wa.). *Phosphate of Silver* is regarded as of special value in myelitis with disturbance of bladder and rectum, and in sclerosis of the nervous substance (Wa.). *Nitrate of Silver*, the only remedy which has done good in progressive locomotor ataxia; gr. $\frac{1}{10}$–$\frac{1}{2}$ two or three times daily, with Hypophosphite of Sodium, both to be discontinued when blue line appears on gums (Althaus). *Cold Shower Baths*, are often beneficial in nervous diseases unconnected with disease of the brain. [Compare HYSTERIA, MELANCHOLIA, MANIA, DIABETES, LOCOMOTOR ATAXIA, HEMICRANIA, NEURALGIA, NERVOUSNESS, INSOMNIA, HEMIPLEGIA, PARALYSIS, SPINAL PARALYSIS, ETC.]

Nervous Exhaustion.

Ammonia, the Aromatic Spirit proves very serviceable; ʒss–j in water thrice daily (Wa.). *Hypophosphites* of lime or sodium, or iron, are actively tonic in cases of nervous depression and torpor, with occasional shooting pains (Wa.). *Strychnine Acetate*, a remedy of great promise, when combined with a rigid system of diet, mental discipline, etc. (Marshall Hall). *Oxide of Zinc*, often excellent as a tonic and sedative, in nervous irritability and depression from anxiety, over-study, etc. (Wa.). *Phosphorus*, of occasional utility in nervous breakdown from over-study, etc. (Wa.). *Caffeine*, gr. j or more in a cup of coffee, to relieve brain weariness and nervous exhaustion (Wa.). *Cocaine*, in ½-grain doses proves serviceable in nervous exhaustion (R.).

Prescriptions.

℞. Strychninæ Acetatis, . . . gr. j.
Ac. Acetici Diluti, ... ♏xx.
Alcoholis, ... ʒ ij.
Aquæ destill., ... ʒ vj.
M. Sig.—Ten drops thrice daily.
(*Marshall Hall.*)

℞. Ac. Phosphorici Dil., . . ℥j.
Elixir Calisayæ (U. S. Disp.), ℥ vj.
Elix. Ammonii Valerian. , . ℥ ij.
Glycerini, ... ℥ iij.
Vini Xerici, . . . q. s *ad* Oj.
M. Sig.—℥j thrice daily.

Nervousness.

Aconite, gtt. j of tinct. at bedtime, repeated if needful, for restlessness and "fidgets" of men as well as women (R.). *Ignatia*, in small doses better than morphine for mental excitement and nervous erethism (P.); for the nervous exaltation of cinchonism (Pf.). *Caffeine*, for restlessness due to great lowering of nervous power (P.). *Chamomile* lowers reflex excitability (P.); minim doses of the tincture every 15 minutes an excellent sedative for children (A. A. Smith). *Potassium Bromide*, especially for women who are despondent, irritable, and sleepless, from overwork, grief, worry, etc.; often connected with migraine (R.); gr. ss–j of any bromide every ¼-hour, is very efficient for the nervous disturbances of children (A. A. Smith). *Conium*, where a great deal of motor agitation, especially in the typhoid-like condition often resulting from mental overwork, with insomnia, exaggerated nervousness and delirium,—it acts charmingly in securing sleep, by removing the motor agitation; ♏x of a fluid extract of the unripe fruit, every ½ hour, carefully watched (Madigan). *Strychnine*, affords relief in functional irritability of the nervous system, manifested by restlessness and wandering neuralgic pains (B.); especially useful as a tonic in nervousness from over-use of tobacco (H.). *Valerian*, extremely useful as a sedative to reflex excitability, calms nervousness, does much good in fevers where restlessness, fidgets, anxiety, etc. (P.). *Musk*, serviceable in nervous affections when from uterine derangement (Wa.). *Opium*, calms the nervous system and gives general repose to both body and mind (R.). *Sumbul*, often invaluable in restlessness of pregnancy; ♏xxx–xl of tinct. with a little Chloric Ether as draught (P.). *Camphor*, a powerful subduer of reflex excitability (P.). *Chloral*, where restlessness, debility (R.). *Chloroform*, the spirit of chloroform internally (R.). *Hops*, the hop-pillow is deserving of trial. *Lupulin*, peculiarly useful when opium cannot be tolerated (Wa.). *Water*, warm sponging to induce sleep and calm restlessness in convalescence. Also, cold sponging (R.). [Compare INSOMNIA, IRRITABILITY.]

Prescriptions.

℞. Strychninæ Sulphatis, . . gr. j.
Quininæ Sulphatis, . . . ʒj.
Tinct. Ferri Chloridi, . . . ʒv.
Ac. Phosphor. Dil.,
Syrupi Limonis, . . . āā ℥ij.
M. Sig.—A teasp. in water thrice daily.
(H.)

℞. Potassii Bromidi, ... ℥j.
Ext. Guaranæ Fl., ... ℥jss.
Syr. Tolutani, ... ℥iij.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Teasp. to a dessertsp. three or four times daily. To relieve nervousness.

Neuralgia.

Phenacetine, *Antipyrine* and *Acetanilide*, are giving great satisfaction in many forms. Of the three, Phenacetine in 10-grain doses, is the safest and most efficient. *Morphine*, hypoder. in the neighborhood of the affected nerve, the best treatment. Caution; morphine-habit (B.); gr. $\frac{1}{16}$ to $\frac{1}{4}$ often relieves and frequently cures after a few repetitions (P.). No remedy promises more speedy and permanent relief than morphine by subcutaneous injection in sciatica, lumbago, tic douloureux and other neuralgic affections (Wa.). *Aconite*, when arterial excitement (B.); in congestive neuralgias, and acrodynic, at extremities; has important rôle (P.); as ointment or liniment, especially when fifth nerve affected; also in neuralgic headache (R.). A remedy of great value (Wa.); a perfect physiological remedy against neuralgia, especially those forms which are based on congestive or sub-inflammatory affections; but its action is often slow, so that Morphine must be given with it as a palliative. *Aconitine*, with Veratrine as an ointment locally, a good application (Da Costa); internally the best agent of all in essential neuralgia, should be combined with quinine in intermittent forms and those which resist quinine alone. (See formula below). *Belladonna*, must be persisted in with full doses; gr. $\frac{1}{80}$ of atropine, or gr. $\frac{1}{60}$ to $\frac{1}{80}$ hypodermically, in vicinity of nerve, has special utility in tic douloureux and sciatica; also in peri-uterine and dysmenorrhœal neuralgias (B.). ♏j of solution of gr. j–ʒij of water hypodermically (P.). Spinal irritation, intercostal neuralgia. The liniment or ointment of atropine in facial (R.). Gr. 0.15 of the extract every hour till giddiness, then lessen dose. Continue for several days (Tr.). *Veratrum Viride*, tincture, said to be very useful (R.). Veratrine, ointment for facial and sciatica (R.). Oint. (gr. viij–℥j) frequently of much benefit (P.). *Nux Vomica*, is most useful in visceral neuralgiæ, as gastralgia, hepatalgia, etc., the tincture with carminatives in the former affection; or strychnine, gr. $\frac{1}{100}$ to $\frac{1}{32}$ twice or thrice daily. In all forms of neuralgia this remedy should be used in small doses (P.). *Arsenic*, cures by its influence on bodily nutrition; directly so in neuralgias of malarial origin, though inferior to quinine (B.). In various neuralgias, also in angina pectoris (R.). *Phosphorus*, gr. $\frac{1}{12}$ every few hours, has made very effective cures (B.).

Gr. $\frac{1}{100}$ to $\frac{1}{12}$ every 3 hours. Very useful in all forms, especially when uncomplicated (R.); always a good remedy except for cases due to cold or inflammation, and those not depending on depraved nutrition (H.). *Quinine*, large doses (gr. v–xx, in sherry), just before attack in periodical neuralgia, whether malarial or not. Useful also in small, frequently repeated doses in other types, especially of supra-orbital nerve (P.); has selective action upon supra-orbital form (Spender). *Salicylates* in large doses cured a case of tic doul. of 12 years' standing (Dercum). *Sumbul*, for certain types, of more value than any other remedy. Facial, sciatic, or ovarian, in women of nervous constitution, often yield to it at once (P.). *Cimicifuga*, in neuralgia of the 5th from cold, and in ovarian neuralgia (B.). *Gelsemium*, successful in neuralgia of 5th (B.); especially dental branches (R.); of value in trigeminal, ovarian, etc. (W.); in suitable cases small doses answer as well if not better than large ones (Pf.); ♏iij of the tincture every ½ hour often succeed miraculously with no ill results in neuralgiæ about the head and face (A. A. Smith); no better remedy in tic douloureux, but must be given in large doses, ♏x–xv of a strong tincture or fluid extract (H.). *Zinc Valerianate*, extremely beneficial in neuralgia from reflex irritation of female pelvic organs (B.). *Spigelia Anthelmia*, useful in facial (P.). *Ammonium Valerianate*, or *Zinc Val.* in neuralgia of face or head (R.); the latter in nervous cases, and uterine (Wa.). *Chamomile*, in neuralgia of 5th nerve (R.). *Staphisagria*, internally and externally often curative in obstinate facial and cervical neuralgia (P.). *Ignatia*, in hysterical and intercostal neuralgia, with nervous erethism, is valuable (P.). *Ergot*, much employed in visceral forms, especially gastralgia (P.); said to be useful (R.). *Ammoniated Copper*, in neuralgia of the 5th, lately used by Féreol with remarkable success; ½-grain doses pushed. *Eserine*, very efficient in neuralgia of the eye-ball, a solution of gr. ij to the ℥ by instillation. *Cannabis Indica*, ¼–½ gr. doses of extract 2 or 3 times a day; especially for neuralgic headache (P.); found useful (R.). *Cod-Liver Oil*, when low nutrition, faulty assimilation (W.). *Iron*, when from anæmia. Tincture of chloride (♏ xxx–xl ter die), also chalybeate waters (B.). Moderate doses only required (R.). In chlorotic subjects, of whom nearly all will have neuralgia (Tr.). *Iodides*, for neuralgia of fifth, dependent on syphiloma of the nervous system, pain nocturnal chiefly (B.). *Bromides*, benefit some kinds, especially ovarian (B.); potassium bromide occasionally relieves (R.). *Ammonium Chloride*, half-drachm doses in facial and other neuralgiæ, is much used (R.); a very efficient and diffusible stimulant, gr. xx –ʒj at first, repeated every hour during the attack (H.). *Chloroform*, as anæsthetic to relieve pain, is occasionally useful locally, also as spray for uterine neuralgia (R.); by deep injection into vicinity of affected nerve, ♏v–xv of pure chloroform, a very efficient method of dealing with long-standing cases (B.); used in one case it caused symptoms so severe as to imperil the life of the patient (W.). *Theine*, hypodermically, is promptly analgesic, and has prolonged influence, but must be aided by remedies to improve the nutritive state of the affected nerves, or which are capable of removing the diathesis upon which the neuralgiæ depend (Mays). See Formula below. *Caffeine*, hypodermically has been found useful, especially in cervico-brachial neuralgia (P.). *Cocaine*, as a hypodermic injection, a 4 or 5 per cent. solution is very effective if administered in the vicinity of the aching nerve (R.); also by instillation in neuralgia of the eyeball, and whenever it can be applied to a mucous surface in the vicinity of the pain. *Croton Chloral*, very effective, especially in tic douloureux and sciatica, gr. ij–v every hour till gr. xv are taken (B.); in facial, that from carious teeth, that of neck and back of head, tic douloureux, etc. (R.). Gr. j every ½ hour is a very efficient dose (A. A. Smith); rarely of any value, but when used is best given in 20-grain doses twice daily (H.). *Chloral* and *Camphor*, partes æquales, triturated together, and painted over surface (B., R.); also with morphine (B.). *Aquapuncture*, strangely relieves pain in a superficial nerve, so much so, that some hold the curative effects of morphine injection to be due to the water (B.). *Counter-irritation*. Mustard poultices in neuralgic pains (P.). Blisters to a posterior branch of the spinal nerve-trunk from which painful nerve issues (Anstie). *Amyl Nitrite*, inhaled in dysmenorrhœal neuralgia (B.); and when of 5th nerve (R.). *Nitro-glycerin*, has often afforded great relief (Wa.). *Carbonic Acid Gas*, injected into vagina for neuralgia of uterus (R.). *Digitalis*, is strongly recommended in sciatica, also locally in earache (P.). *Valerian*, serviceable in facial neuralgia of hysterical type (P.). *Bibiru Bark*, in intermittent forms (P.). *Pyrethrum*, root, is chewed with benefit in facial neuralgia (P.). *Capsicum*, a strong infusion on lint covered with gutta-percha (R.). *Coccus Cacti*, has been very successful in 20–30 minim doses of a ⅛th tincture twice daily, the larger dose in the paroxysm (W.). *Peppermint, Oil of*, painted over the part in facial neuralgia (R.); especially the Chinese oil which contains a large excess of *Menthol*, a very useful application in superficial neuralgiæ (W.). *Turpentine*, has cured tic douloureux and sciatica (B.); often of wonderful service (P.). *Potassium Chlorate*, for facial neuralgia (B.). *Alcohol*, with much volatile ether; care must be taken in prescribing it (R.). *Piscidia*, almost specific in many forms, useless in many cases (W.). *Tonga*, is efficient in facial neuralgia, ♏x–xx every two hours (H.). *Osmic Acid*, a one per cent. aqueous solution with glycerin to prevent change, of which 5 to 10 drops hypodermically, has made striking cures of inveterate neuralgiæ, with no ill effects resulting (Shapiro). *Wet Pack*, is of great benefit, especially in sciatica. *Intense Cold*, produced by a spray of Chloride of Methyl, or concentrated carbonic acid gas, directed along the nerve from special apparatus, immediately relieves the pain, and usually cures (Jacoby). *Compressed Air*, by insufflation into the middle ear, in cases of persistent and paroxysmal temporo-occipital neuralgia, due to chronic follicular pharyngitis and inflammation of middle ear (Legal's Disease). If these insufflations result in diminution of the pain, treatment should be directed to the naso-pharynx and Eustachian tubes (Masucci). *Galvanism* of the affected nerve, one of the most important curative measures; a continuous current of 4 to 8 cells down the nerve generally answers best, though some cases are helped more by a rapidly interrupted faradic current. Electricity is of no value in cases dependent upon organic lesions, and in any individual case is purely experimental (W.). *Diet*. Animal fats necessary, as cod-liver oil, butter, cream, etc., in as large quantity as can be digested. *Rest* often needed, with protection from cold and damp, flannel clothing, bathing and shampooing. [Compare GASTRALGIA, HEPATALGIA, SCIATICA, TIC DOULOUREUX, HEMICRANIA, etc.]

Prescriptions.

Local Use.

℞. Chloroformi,
Tinct. Aconiti, ... āā ℥ ss.
Linim. Saponis, ... ℥j.
M. Sig.—Apply on flannel and cover with oiled silk for superficial neuralgia.

℞. Aconitinæ (Duquesnel), . . gr. iv.
Veratrinæ, ... gr. xv.
Glycerini, ... ʒij.
Cerati, ... ʒvj.
M. Sig.—To be rubbed over the part, avoiding any abraded surface carefully.
(*Da Costa.*)

℞. Mentholi, ... gr. xlv.
Cocainæ, ... gr. xv.
Chloralis, ... gr. x.
Vaselini, ... ʒv.
M. ft. ung. Sig.—For local use.
(*Potter.*)

Internal Use.

℞. Phosphori, ... gr. ss–jss
Alcoholis, q. s. *ad* solv.
Spt. Menthæ Piperitæ, q. s.
Glycerini, ... q. s. *ad* ℥iv.
M. Sig.—A teasp. after each meal.
(H.

℞. Cupri Ammonio-sulphat., . gr. j–iv.
Syr. Aurantii Flor., ... ℥j.
Aquæ Destil., ... ℥iij.
M. Sig.—One-third as a dose, thric
daily. (*Prof. Fire*

℞. Quininæ Sulphatis, ... ʒj.
Ferri Pyrophosphatis, . . . ʒj.
Strychninæ Sulphat., . . . gr. ss.
Ac. Phosphor. Diluti, . . . ℥ij.
Syr. Zingiberis, ... ℥ij.
Aquæ, ... q. s. *ad* ℥iv.
M. Sig.—A tablespoonful twice dail

℞. Veratrinæ, ... gr. xl.
Adipis, *vel* Unguenti, . . . ℥j.
M. Sig.—Local use. (*Da Costa.*)

℞. Theinæ,
Sodii Benzoatis, ... āā ʒj.
Sodii Chloridi, ... gr. x.
Aquæ Destil., ... ℥j.
M. Sig.—3 to 20 drops hypodermically at central seat of disturbance. (*Mays.*)
♏vj = gr. ss of Theine.

℞. Aconitinæ Crystal., ... gr. $\frac{1}{30}$.
Quininæ Hydrobrom., . . . gr. xx.
M. ft. massa, et div. in pil. no. xij.
Sig.—One every 4 or 5 hours. (*Potter.*)

℞. Tinct. Aconiti,
Tinct. Colchici Sem.,
Tinct. Cimicifugæ,
Tinct. Belladonnæ, āā part æq.
M. Sig.—6 drops every hour until relieved. (*Metcalf.*)

Night-Mare.

Potassium Bromide, in night-mare of adults; and children's attacks of night-screaming often associated with squinting. Digestive organs may also require attention (R.). *Camphor-water*, a teaspoonful or two the most suitable medicine (H.). *Sleep*, in abundance, may prevent (H.). *Diet*, light; avoid late meals.

Nipples, Sore, Fissured.

Benzoin, an admirable local application (P.); the tincture locally for slight erosions (Parvin). *Arnica*, the cerate, or *Glycerin of Starch*, or glycerin, 1 to 2 of eau de cologne (R.). *Silver Nitrate*, touched lightly; effectual (Wa.). *Sulphurous Acid*, solution neat or diluted, constantly applied, or with equal quantity of glycerin as lotion (R.). *Collodion*, sometimes used (R.); useful for protection (P.); as coating (B.). *Alcohol*, brandy and water as lotion before delivery and after each suckling to prevent cracking (R.). *Borax*, saturated solution, beneficial (Wa.). *Iron*, the solution of the subsulphate diluted with 3 parts of glycerin, and applied with a camel's-hair brush, an effective application for fissured nipples (B.). *Tannin*, the glycerite, one of the best applications to fissured nipples (B.). *Lead Nitrate*, in glycerin, or ointment ʒj–℥j, in fissured nipples (B.). *Zinc Shield*, constantly worn (R.). *Balsam of Peru* or *Tolu*, valuable as application, with oil of almonds, gum arabic, and rose-water (P.). *Rhatany*, as wash or cerate, has had great success in fissure (Tr.); 1 part of extract to 15 of cocoa butter (Wa.) *Nipple-Shield*, to give the nipple rest while the child sucks, gives great comfort. [Compare LACTATION, MASTITIS.]

Prescriptions.

℞. Balsam. Peruvian., . . . ʒij.
Olei Amygdalæ, ... ʒjss.
Mucil. Acaciæ, ... ʒij.
Aquæ Rosæ, ... q. s.
M. Sig.—Apply to the nipples after each nursing. (*Phillips.*)

℞. Liq. Plumbi Subacet. Dil., ℥ss.
Ext. Opii Aquosi, ... ʒj.
Aquæ Rosæ, ... ℥iijss.
M. Sig.—Lotion, to be used after a bread-and-milk poultice, for inflamed nipples. (*F. Barker.*)

Nodes.

Mercury. The oleate of mercury and morphine externally, is very valuable (R.). *Potassium Iodide*, as ointment in conjunction with internal use, in syphilitic nodes of children; also in non-syphilitic periosteal thickenings (R.). In syphilitic nodes it holds the first place, especially when pains are worse at night, and by heat of bed (Wa.). *Stramonium* leaves, locally, relieve (Wa.). [Compare EXOSTOSIS, PERIOSTITIS.]

Nymphomania.

Potassium Bromide, when from plethora; not useful when relaxation, or from cerebral lesion (B.); large doses required, at least gr. xx ter die (R.); an abundance of evidence testifies to its value (W.). *Tobacco*, to nausea, effectually cures, but is horribly depressing (B.). *Camphor*, in considerable doses said to control inordinate sexual desire (R.); at present not much relied on (Wa.). *Lupulin*, seems worthy of fair trial (Wa.). *Sulphur*, or dilute sulphuric acid, internally, when arising from hemorrhoidal congestion, not an infrequent cause (Wa.).

Obesity.

Banting Dietary is alone sufficient to improve the condition. Its chief feature is the exclusion of two elements—starch and sugar—from the food. Therefore bread (except toast, or the crust of a common loaf), potatoes, sweet roots, butter, sugar, cream, beer, porter, and champagne, should be avoided. In one year, on this diet, Mr. Banting reduced his weight 46 pounds, and his girth about 12 inches; at the same time, his numerous corporeal infirmities were greatly mitigated or altogether removed. Cannot be recommended indiscriminately. This was the method of Hippocrates, avoiding all fats, starches, and sugars; in fact, all roots or vegetables grown underground (B.). *Meat Diet*, very successful in 42 cases, the diet being confined to rump-steak, hot water and cod-fish, for 14 days, absolutely excluding everything else. (Dr. Smith in *Brit. Med. Jour.*, Nov. 10th, 1888). The *Schweninger* or *Œrtel* method is similar, using chiefly albuminous food, excluding fat and carbohydrates, limiting the fluids drank, especially at meals, and enforcing exercise. *Iodoform*, is highly efficient, but causes wasting, and anæmia by injuring red blood corpuscles (B.). *Iodol*, in 2-grain doses thrice daily, is equally effective (B.). *Alkalies*. Solutions of oxides or bicarbonates (R.); alkaline mineral waters, with exercise and dietary (B.); serviceable (Wa.). Liquor potassæ ʒss in milk, thrice daily, of established value (Wa.); generally fails (R.). *Ammonium Bromide*, sets up gastric catarrh (B.); but lessens corpulency (Wa.). *Sulphurous Waters*, especially Blue Lick, ℥iv before each meal (B.). *Potassium Permanganate*, for attendant dyspepsia and flatulence; also useful for the obesity; gr. ¼–j ter die, in aq. dest. (B.). *Vinegar*, only successful at expense of serious injury to the body (R.). *Fucus Vesiculosus*, has power to reduce adipose tissue. An extract is sold under the title "Antifat" as a proprietary medicine (W.). *Exercise*, daily, in the open air is necessary, and if carried on systematically is the most efficient and least injurious method of reducing an excess of adipose tissue.

Odontalgia.

Aconite ointment or liniment for facial neuralgia due to diseased teeth, will succeed quickly if at all (R., Wa.). *Arsenic*, gr. $\frac{1}{20}$, as escharotic to destroy pulp, when used for pain may be mixed with opium. It sometimes at first aggravates pain (R., W.). *Staphisagria*, the alcoholic solution dropped into the cavity (P.). *Alum*, a solution of nitric ether (ʒij–ʒvij) is said to be effectual application (B.). Alum and salt powdered and placed in the cavi excellent when nerve exposed. *Chloral*, rubbed up with equal weight camphor, rubbed or put into cavity (R.). *Chloroform* or *Croton-Chloral*, equ parts of the former and creasote, a good application (R.). *Tannin*, a solutio in ether is a good application to a carious tooth (B.). *Creasote*, with tannin opium or chloroform, placed in the cavity of a decayed tooth, often give relief (R.). *Cocaine*, a 5 per cent. solution of the hydrochlorate on cotton a plied to a cavity will often bring instant relief. *Coniine*, solution in alcoh placed into a hollow painful tooth (R.). *Collodion* and *Carbolic Acid*, equ parts as jelly for stopping carious teeth (R.). *Opium*, mixed with tannin creasote inserted in cavity of painful tooth (R.). *Morphine*, hypodermicall for severe toothache (R.). *Oil of Cloves*, inserted into cavity (B., P.) *Campho* with morphine and flaxseed, as a cataplasm to the cheek (B.). *Xanthoxylu* a domestic remedy (B.). *Capsicum*, a strong infusion on lint (R.). *Gels mium*, useful in some forms (R.). *Zinc Chloride*, to destroy exposed painf pulp (R.). *Ginger*, *Mezereon*, *Pyrethrum*, are useful masticatories in toot ache (P.).

Prescriptions.

℞. Linim. Aconiti (B. P.),
Chloroformi, ... aa ʒ iij.
Tinct. Capsici, ... ʒ j.
Tinct. Pyrethri,
Olei Caryophylli,
Pulv. Camphoræ, . . . aa ʒ ss.
M. Sig.—A few drops to be placed on a pellet of cotton and applied to the cavity. (*Mason.*)

℞. Ac. Tannici, ... gr. xx.
Mastiches, ... gr. x.
Ætheris, ... ℥ ss.
M. Sig.—On cotton to cavity. (D.)

℞. Creasoti, ... ʒ ij.
Ol. Caryophylli, ... ʒ iv.
Ol. Menth. Piperit., . . . ℥ j.
Camphoræ, ... ℥ ijss.
Alcoholis, ... q. s. *ad* Oj.
M. Sig.—"Toothache Drops."

℞. Morphinæ Sulph., ... gr. iv.
Atropinæ Sulph., ... gr. j.
Aquæ Destill., ... ℥ j.
M. Sig.—A few drops on cotton, placed in the cavity. (B.)

Œsophagus, Affections of.

Belladonna, the liniment with frictions to the sternum, often very useful as a palliative in stricture of the œsophagus (Wa.). *Conium*, in spasmodic contractions, with crampy pains of stomach, flatulence, and globus hystericus, has proved very serviceable (Wa.). *Hyoscyamus*, or *Conium*, in stricture of œsophagus, if much irritability; with occasional leeching to relieve exacerbations of pain or spasm (D.). *Silver Nitrate*, in stricture of the œsophagus, a weak solution on sponge probang (D.). *Anæsthetics*, should be used only to meet temporary indications (W.). *Nutrient Enemata*, in stricture of the œsophagus, when swallowing impossible (R.); may, in some cases, even preserve life (Wa.). [See ENEMATA.] *Bougie Dilatation*, in non-spasmodic (structural) stricture, the only appropriate treatment (H.). [Compare DYSPHAGIA, CHOKING.]

Onychia and Paronychia.

Silver Nitrate, a strong solution in nitrous ether, painted over the adjacent tissue, will abort if applied early (B.); frequently causes resolution of the inflammation (Wa.). *Lead Nitrate*, dusted over night and morning (R.); relieves pain, and hastens healing process (B.). *Turpentine*, applied on a piece of lint or other absorbent material, stops the pain at once, and seems to kill the felon. *Mercury*, as ointment, for 10 minutes in every hour; poultices in interim (R.). *Arsenic*, gr. ij. ad ℥j Adipis, as ointment, almost specific in onychia maligna (Wa.). *Tartar Emetic*, will shorten course, and render it milder (R.). *Iodoform*, oint. or powder dusted on (B.); or 1 part to 9 of Ether applied by a dropper in syphilitic onychia (Fox). *Iodine*, a strong alcoholic solution locally will often subdue the disorder (Wa.). *Chloral*, a solution locally, as antiseptic, and to promote healing (B.). *Sodium Chloride*, common salt roasted until chlorine is driven off, equal parts of this, castile soap and Venice turpentine, as a poultice, is a very efficient application. *Carbolic Acid*, to benumb surface during incision (R.); which should be carried down to the bone, especially in tendinous whitlow (D.). *Cocaine*, hypodermically, will accomplish the local anæsthesia more thoroughly, if delivered deeply into the tissue. *Morphine*, powdered, as local application to relieve pain. *Heat*, by poultices, is very useful. *In Opening* a felon avoid the line of the arteries, on the sides of the fingers, and that of the flexor tendons which is the median line on the palmar surface. The incision should be made midway between these lines. If the sheath of the tendon be opened the tendon may slough, and the finger be rendered useless (Ashhurst).

Ophthalmia.

Silver Nitrate, a strong solution (gr. xx ad ℥j) in granular lids; cautiously when corneal ulcers exist (B.); solid stick diluted with 2 to 4 parts of potassium nitrate, applied lightly and quickly, or a solution (gr. ij–x ad ℥j) painted over everted lids, which should be washed with a solution of common salt, and then with water before being replaced (C.); in solution, gr. v ad ℥j aquæ destillatæ, locally once a day in purulent ophthalmia of the new-born, washed off with a weak solution of common salt (Noyes); in solution, gr. iij to the ℥ to abort the discharge in catarrhal ophthalmia (Fox). *Boro-Glyceride*, in many catarrhal affections, especially ophthalmia neonatorum, is a most efficacious application, the solutions used being of 10, 25 and 50 per cent. strength (Fox). *Alum*, gr. viij ad ℥j aquæ, applied every ¼ or ½ hour in purulent ophthalmia of children; success depends on the frequency of the application (R.); a crayon formed of a crystal of alum, a mild and occasionally useful application (C.). *Mercury*. Calomel dusted over membrane in phlyctenular ophthalmia; or after detaching scales rub in brown citrine ointment every night for eczema of margin of lids (B.). *Pulsatilla*, as lotion to conjunctiva 8 or 10 times in 24 hours, also internally (P.); much used by homœopaths (B.). *Spigelia*, useful in rheumatic ophthalmia (P.). *Antimony*. Tartar emetic, gr. $\frac{1}{48}$ to $\frac{1}{30}$, three or four times a day in strumous ophthalmia, with sharp purgation at commencement (R.). *Belladonna*, or Atropine, locally, of great service in strumous ophthalmia to relieve pain; constitutional treatment also required (Wa.). Atropine, gr. ij of neutral sulphate to the ℥ of aqua destillata, twice or thrice daily, as soothing application (C.). *Arsenic*, invaluable in inveterate cases of strumous ophthalmia, especially when complicated with cutaneous eruptions (Wa.). *Copper Sulphate*, gr. j ad ℥j aquæ camphoræ as collyrium in purulent ophthalmia of infants; in substance to inner part of lids in granular conjunctivitis (Wa.). *Tannin*, powdered (or in solution gr. j–x ad ℥j) produces remarkable results (B.). *Lead Acetate*, gr. j ad ʒj aquæ destillatæ, applied by camel's-hair pencil to surfaces of everted lids, washed away before the lid is replaced. Or the Tannate of Lead 1½ ad 3 parts fine oil, and 1 of fresh lard, a very small piece as ointment to lid (C.). *Carbonic Acid Gas*, said to relieve the pain and photophobia of strumous ophthalmia when locally used (R.). *Physostigma*, to reduce pupil and shut out the light (P.). *Iodine*, is employed in scrofulous ophthalmia, locally for its alterative stimulation (W.). *Iodoform*, in gonorrhœal ophthalmia, and purulent conjunctivitis, of very great value locally, but should be pulverized very finely (Grossmann); does not bear out the claims made for it (Keyser). *Zinc Chloride*, gr. j ad ℥j aquæ as collyrium, in gonorrhœal ophthalmia, used with marked benefit; also a stronger solution (gr. ij–iv ad ℥j), effectually arrests the muco-purulent discharge remaining after subsidence of purulent ophthalmia, and has succeeded admirably in diphtheritic conjunctivitis and pustular ophthalmia (Wa.). *Zinc Sulphate*, as collyrium, gr. j–iv ad ℥j, is very serviceable in ophthalmia of infants or adults; liquor plumbi added improves (Wa.). *Staphisagria*, especially in tarsal ophthalmia (P.). *Colchicum*, when gouty diathesis (P.). *Cod-liver Oil*, in strumous subjects, tends to remove the manifestations of the disease (R.). *Cold Wet Compresses*, or iced, are held to be essential in early stage of acute purulent and gonorrhœal ophthalmia (C.). [Compare BLEPHARITIS, CONJUNCTIVITIS, KERATITIS.]

Opium Habit.

Capsicum, very serviceable from its power as a stimulant to the stomach, and its sedative action on the cerebrum (B.); removes the sinking sensation at the pit of the stomach experiened by alcoholics, when trying to break off that habit (R.). *Bromide of Sodium*, in large and increasing doses, ʒj twice daily, increased by 20 grains each day, to a maximum of 100 to 120 grains twice in twenty-four hours, with simultaneous gradual reduction of the opiate dose, so that from the 8th to the 10th day it is entirely abandoned. Each dose of the salt should be given in 6 or 8 fluid ounces of cold water (Mattison). A combination of bromides (see formula below), commencing with 40 grains twice daily, increasing to 100 grains twice daily, at 10 A. M. and 4 P. M., freely diluted with water, does not depress vitality, or produce the injurious results of the bromides as commonly administered. This, with ʒj of Warburg's tincture beforebreakfast each morning, with the use of Spt. Etheris Nitrosi to eliminate the bromides apidly, electricity, a mixture of iron and strychnine, and an occasional hypoderic of 5 or 10 minims of a 4 per cent. solution of Cocaine for nervous restlessess, is the general line of my treatment (Mann). Bromides may do great arm, if recklessly administered, paralyzing the muscular system and causing rolonged delirium. *Cocaine*, or the fluid extract of Coca (Erythroxylon), has een used to relieve the depression caused by the withdrawal of the drug (B.); as been, by many careful observers, pronounced of great benefit, restoring ppetite, inducing sleep, promoting digestion, while soothing the brain and ducing a feeling of contentment and calm (R.). Should never be entrusted the patient, lest he jump out of the frying pan into the fire. *Gelsemium* ubdues the restlessness and motor excitement; proved of great value in one ase where 30 grains of morphine were used daily; ♏j of tincture every ½ our (Pennoyer). *Conium*, in 10-drop doses of a good fluid extract, to check otor activity and relieve the wandering pains. *Sparteine*, in doses of gr. ⅓ ⅔ hypodermically, at moment of systolic cardiac depression which answers the period of craving, and corresponds to the truncated curve of the sphygographic trace, which is characteristic of the period when the stimulant effect morphine has passed (Jennings). *Nitroglycerin* acts in the same manner, ut its effect is more rapid and more ephemeral (Idem). *Cannabis Indica*, may required in full doses, for restlessness after withdrawal of the opiate, ʒ-doses Squibb's fluid extract, repeated every hour or two, as required (M.). *Galvanm*, is very efficient for the neuralgic pains in various parts; a strong faradic rrent sometimes acting better (M.). *Baths*, if hot, 105° to 112° F., are of eat value to relieve disquiet; warm baths are worthless (M.). *Chloral*, as a pnotic, fails in the first few days of abstinence; later in full doses, 45 grains once, rather than three 15-grain doses, alone or with a bromide, it can be lied on (M.). *Hyoscyamine*, Merck's amorphous, gr. $\frac{1}{12}$ to $\frac{1}{8}$ hypodermically, more, is useful as a hypnotic, and perfectly safe, in patients of good general ndition, in whom the disuse of Opium produces unusual insomnia and motor tivity (M.). *Lupulin*, with Phosphoric Acid (see formula below), helps to stain the patient, lessens the force of his suffering, and shortens its duration leming). *Zinc and Iron* as blood tonics, given for a month at least, are luable, and are best given on alternate days (see formula below) (Fleming). *scidia Erythrina*, has been proposed as a substitute, and highly commended, t is worthless, as are also *Avena sativa* and many other falsely termed subtutes (M.); there is no remedy for the opium-habit (Da Costa). *Zinc Oxide*, r the vomiting and diarrhœa, beginning with gr. j once daily and increasing tolerance (Da C.). *Withdrawal* of the drug suddenly and completely, is e method of Levinstein and other Germans, and is preferred when we can ve absolute control and surveillance of the patient (Da C.); entails horrible ffering, and is utterly inexcusable (M.). A more gradual reduction is the ethod usually employed, taking off one-third the first day, one-fourth the cond day, and then gradually reducing the amount until the sixth or seventh ay, when it is entirely withdrawn. No agent is of any value unless strengthened y moral courage and perseverance on the part of the patient (Squibb). Usess to try to cure a patient while he is pursuing his ordinary avocations. ailure will result unless there is complete seclusion and entire giving up to the eatment (Mann).

Prescriptions.

. Tinct. Capsici, ... ʒ iv.
Potassii Bromidi, ... ʒ iv.
Spt. Ammoniæ Aromat., . ℥ iij.
Aquæ Camphoræ . . . *ad* ℥ vj.

M. Sig.—A dessert-p. several times aily, in the depression of alcoholism and pium-habit. Instead of the bromide, owler's Solution (Liq. Potas. Arsenitis), , may be added; or Tinct. Nucis Vomæ ʒ ij, or Tinct. Aurantii Amari ʒ v. (*Ringer.*)

℞. Strychninæ Sulphatis, . . gr. ss.
Tinct. Belladonnæ,
Tinct. Capsici, ... āā ʒ iij.

M. Sig.—Ten drops every three hours, increasing three drops daily.

℞. Tinct. Cannabis Ind., . . ♏xl–lx.
Spt. Ætheris, ... ʒ j.
Aquæ, ... q s *ad* ℥ j.

M. Sig.—One dose, if insomnia is very protracted. (*Fleming.*)

Combination of Bromides.

℞. Ammonii Bromidi,
Sodii Bromidi, ... āā ℥ss.
Potassii Bromidi, . . . ℥j.
Liq. Potass. Arsenit., . . . ʒj.
Syr. Tolutan., ... ℥j.
Aquæ Menthæ Piper., . . ℥jss.
Syr. Hypophos. Comp., . . ℥iij.

M. Sig.—ʒj to ʒij in water thrice daily. Has a total of Bromides, gr. 21⅓ in each ʒ. (*Mann.*)

℞. Strychninæ Sulph., . . . gr. ss-j.
Tinct. Gentianæ Co.,
Tinct. Cinchonæ Co., . āā ℥ij.

M. Sig.—Teasp. before each meal, as a stimulant to the appetite and nervous system.

℞. Tinct. Nucis Vomicæ, . . ʒiij.
Ac. Phosphor. Diluti, . . ʒv.
Syr. Pruni Virg., ... ℥ij.
Aquæ, ... q. s. *ad* ℥iv.

M. Sig.—ʒij twice daily as a nerve-tonic. (*Potter.*)

Orchitis.

Pulsatilla, ♏j or less, every hour, relieves pain rapidly, though not the œdema (St.). *Belladonna*, int. and as oint. (extract j ad iij adipis) when inflammation has subsided (Wa.). *Sodium Salicylate* in gonorrhœal orchitis, subdues pain in a few hours. *Iodine*, tinct. locally to remove swelling after the acute stage has passed (B.). *Mercury*, the oleate locally (B.); Calomel gr. iij with Ipecac, gr. x at once, followed by a saline next morning, and smaller doses of calomel and ipecac, every 6 hours, with morphine hypodermically, gr. ¼, into cellular tissue of scrotum (McElroy). *Ammonium Chloride*, makes a good evaporating lotion, in solution with alcohol and water (R.). *Silver Nitrate*, a strong solution to the scrotum, with gentle pressure (Wa.). *Tartar Emetic*, in acute orchitis (R.). *Digitalis*, locally, is found most useful (P.). *Alcohol*, with equal quantity of water, as evaporating lotion (B.). *Ice*, benefits and relieves pain (B.). [Compare EPIDIDYMITIS.]

Prescriptions.

℞. Ammonii Chloridi, ... gr. xl.
Alcoholis, Aquæ, . . . āā ℥ij.

M. Sig.—Lotion, to be applied on cloths to the part.

℞. Hydrarg. Ammoniat., . . ʒj.
Cerati Simplicis, ... ℥j.

M. ft. unguent. Sig.—Apply locally, with gentle friction.

Otalgia.

Aconite and Opium, equal parts of the tinctures, a few drops well down the external meatus, will often subdue the pain. *Blistering Fluid*, or Croton Oil Liniment, behind the ear often relieves earache (R.). *Glycerin*, for dryness of meatus (R.); or oil for accumulation of wax in external meatus dropped in every night, gentle syringing in the morning with warm water (Cl.). *Opium*. Morphine in solution, gr. iv to the ℥, with gr. j–ij of Atropine, is an excellent application (B.). *Atropine*, gr. $\frac{1}{60}$ in ʒxx of water, a teasp. every three hours for a child in the acute otitis media of children from coryza, very successfully used to abort the otitis, and relieve the earache (Miot). *Pulsatilla*, internally and externally, is often used with advantage (P.). *Cocaine*, a 4 per cent. solution sprayed over the tympanic membrane through the external meatus, and forced into the Eustachian tubes by inhaling the vapor and then expanding the tubes by Valsalva's method; this repeated every three minutes, is a very sure method of curing otalgia (R.).

Otitis.

Pulsatilla, in inflammation of external auditory canal; in otitis, as lotion warmed and applied by syringe, three or four times a day (P.). *Aconite*, quickly relieves the pain (R.); should be used internally and locally. *Carbolic Acid*, a 20 per cent. solution instilled into ear in moderate otitis, relieves ain at once and checks progress. A solution in glycerin is best (Rohrer). *Atro-ine*, in the acute otitis media of children, is very efficient. See OTALGIA, above. *listers*, behind ears, either kept discharging or repeated, often very useful Wa.). *Leeches*, behind the ear, afterwards a small blister upon the same lace, when leech-bites have healed (H.). *Warm Douche* frequently, to the ar, to secure cleanliness, then drying the parts (Roosa).

Otorrhœa.

Mercury, in chronic cases, the brown citrine ointment (B.). *Lead* lotions uch employed (B.). [See GONORRHŒA, for formula.] *Potassium Perman-anate*, as injection or spray, gr. j–℥j aq. destil. (B.). *Silver Nitrate*, locally, solution of gr. iv to the ℥ (B.); gr. x to the ℥ (Roosa). *Copper Sulphate*, r. j–v to the ℥ (Roosa). *Tannin*, the glycerite, locally, is successful (B.); specially in children (Wa.). *Zinc Sulphate*, locally, in solutions of gr. ij–viij o the ℥ (B.); gr. j–v to the ℥ (Roosa). *Cadmium*, gr. ij–℥j rose-water (B.). *iquor Sodæ Chloratæ*, ♏xv–xxx ad ℥j aquæ when discharge fetid: is highly seful as injection (Wa.). *Quinine*, with sulphuric acid, advisable in otorrhœa fter scarlatina (Wa.). *Boracic Acid*, finely pulverized, as astringent and dis-nfectant application; may be mixed with pulv. Alum, and just enough pow-ered Lycopodium to keep it dry;—this packed carefully through speculum, fter washing with a weak and tepid alkaline solution. *Absorbent Cotton* on older, may be used every few hours by patient to keep pus removed from the anal. *Syringing* with warm salt water, once daily, as absolute cleanliness is ssential in the treatment. *Politzer Bag* is a useful adjunct in keeping secre-ions out of tympanum and breaking up adhesions (Roosa). [Compare OTITIS.]

Ovarian Neuralgia.

Atropine, subcutaneously, the best remedy for pain in the pelvic viscera Wa.). *Ammonium Chloride*, gr. xxx with gtt. ij–v tinct. aconiti, repeated in ½-hour if necessary to remove pain (W.). *Camphor*, with Cannabis Indica, of reat service in relieving ovarian pain, especially when spasmodic in character Wa.). *Opium*, often the cause; if use stopped entirely improvement may nsue (E.); one of the best remedies in ovarian pain of non-inflammatory haracter (Graily Hewitt). *Hot Water*, vaginal injections, night and morning; sunlight baths, fresh air (E.). *Ether*, the compound spirit, in doses of ♏xxx–xl as a palliative (Anstie). *Gelsemium*, deserves a trial; its power is great but not certain (Wa.). *Leeches* over the groin, or inside the thigh, where ovarian pain persistent, or tenderness and aching (Wa.). *Surgical*, Battey's operation as a last resort (E.). [Compare DYSMENORRHŒA.]

Ovaritis.

Turpentine Epithems, may be applied hot over the seat of the disease (Wa.). *Tartar Emetic*, as ointment for counter-irritation over seat of disease, in subacute ovaritis; at same time a pill of opium, hemp and camphor. See formula below (Hewitt). *Opium*, in suppository or enema, more effectual than internally (Tilt). *Mercurial Ointment*, combined with camphor and belladonna, over the seat of the disease by friction (West). *Blisters*, in subacute ovaritis are often of great service, placed over the region or to the cervix uteri (Wa.). *Enemas*, of warm water, simple or medicated, in subacute ovaritis, are warmly recommended; they should be retained as long as possible (Wa.). *Salix Nigra*, the "pussy willow," in doses of ♏xxx of the fluid extract thrice daily, of decided benefit in ovarian hyperæsthesia, etc., of highly nervous women. *Ergot*, is valuable in chronic ovaritis, with rest and Potassium Bromide (Tait). *Ice*, in bag, over seat of pain, when intolerable, and patient too much reduced to bear leeches; is often of benefit (Wa.). *Poultices* of Linseed meal, as light as possible, often produce great benefit in ovarian inflammation.

Prescriptions.

℞. Ext. Opii, ... gr. iij.
Ext. Cannabis Ind.,
Camphoræ, ... aa gr. vj.
M. ft. pil. no. vj. Sig.—One pill twice daily. (*Graily Hewitt.*)

℞. Ung. Hydrargyri, ... ʒvj.
Camphoræ, ... gr. xl.
Ext. Belladonnæ, ... ʒij.
M. ft. unguent. Sig.—To be rubbed in twice daily. (*West.*)

Oxaluria.

Mineral Acids, when eructations of sulphuretted hydrogen (R.). *Nitro-muriatic Acid*, is of important service (B.); especially in the condition showing general malaise, weakness, and depression of spirits, with oxalate crystals in the urine (W.); also in sciatica and other forms of neuralgic rheumatism accompanied with oxaluria, full doses (♏vj–x) of this acid, with an occasional brisk purgative, and cold douche, followed by friction (Wa.). *Zinc Sulphate*, often very serviceable in irritability of the nervous system, associated with dyspepsia and oxaluria (Bird). *Lactic Acid*, aids imperfect digestion (B.).

Ozæna.

Gold, the auric salts are very serviceable in syphilitic ozæna (B.). *Mercury*, ointment of the nitrate in syphilitic form; the white or red precipitate with 58 times its weight of sugar snuffed after clearing the nose in non-syphilitic forms (R.). *Potassium Permanganate*, ʒj–Oj solution as injection or spray (B.). *Hydrastis*, the fluid extract locally (B.); ʒj–℥viij solution as lotion with ♏v of the tincture thrice daily internally (P.). *Bromine*, as inhalation (see formula below); or *Iodine* with *Carbolic Acid*, or the latter in one per cent. solution, as inhalations (B.). *Carbolic Acid*, inhaled, 1 per cent. solution (B.). *Silver Nitrate*, applied behind veil of palate;—gr. v–xx ad ℥j (B.). *Alum*, solution (ʒj–Oj) for irrigation (R.). *Glycerite of Tannin*, by irrigation (R.). *Salicylic Acid*, in very weak solution (1 to 500), as cleansing, astringent, and disinfectant wash, used by retro-pharyngeal syringe, and followed by applications of *Calomel*, in powder, to the ulcerated portions of the mucous membrane (Massei). *Cubeba*, the oleo-resin, gtt. xv–xx on sugar after each meal, to restrain the secretion and perhaps modify its character (Cohen). *Chloride of Lime*, gr. xxx–lx with ℥j decocti krameriæ; of which ʒij–iij, diluted with an equal quantity of water, should be injected twice daily after cleansing with salt and water (Cohen). [Compare CATARRH, CHRONIC NASAL.]

Prescriptions.

℞. Tinct. Iodi, ... ʒiv.
Ac. Carbolici, ... ʒj–ij.
M. Sig.—Use on sponge in a wide-mouthed bottle as inhalation.
(*Potter.*)

℞. Bromi, ... ʒss.
Alcoholis, ... ℥ss.
M. Sig.—Inhalation when vaporized by heat of the hand.

℞. Sodii Carbonatis,
Sodii Boratis, ... aa ʒij.
Liq. Sodæ Chloratæ, . . . ℥ss–ʒij.
Glycerini, ... ℥j.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Apply by means of a hand-spray apparatus. (*Thornton.*)

℞. Acidi Carbolici, ... ♏xx.
Aquæ Calcis, ... Oj.
M. Sig.—Use as wash or spray.

Pain.

Opium, is universally used to quiet pain. Morphine, hypodermically, in vicinity of nerve, is curative when not so by stomach. Morphinæ acetas vel sulphas gr. ⅙–½, with atropinæ gr. $\frac{1}{120}$ to $\frac{1}{110}$. Caution, morphine habit (B.). Sometimes a single injection curative of sciatica and neuralgia. Poultices containing laudanum useful in inflammation. Linimentum opii by friction, relieves

eurodynia, neuralgias, etc. Opiates soon lose their influence in any certain
ose, requiring increased quantities to keep up analgesic influence, so in chronic
ses it is best to exhaust all other means before resorting to it (R.). *Chloral*,
s no direct pain-relieving power, except in dangerous doses. To relieve pain
d promote sleep, the best agent is a combination of chloral and morphine,
utiously, if heart trouble, or to old drunkards; gr. xv–xxx + gr. ¼ (B.).
ometimes relieves neuralgia, chronic rheumatism, gall-stones, colic, gastralgia,
d even cancer (R.). *Aconitine*, locally over seat of pain; one of the most
rtain and powerful palliatives in neuralgic, rheumatic, and gouty affections
Va.); especially serviceable in neuralgia of 5th nerve (B.). *Belladonna*, the
st remedy for every kind of pain in pelvic viscera (Anstie). Atropine hypo-
rmically in local pain, neuralgia, sciatica, glaucoma, etc. When it succeeds,
as more lasting effect than morphine (R.); sciatica, tic douloureux, etc. (B.).
dides, are magical in syphilitic nocturnal pains of head (B.). The iodide of
mmonium, gr. iij ad ℥j ol. olivæ, with friction; causes the disappearance of
octurnal syphilitic pains (Wa.). *Cimicifuga*, relieves many kinds; neuralgia
f 5th, rheumatic headache, ovarian neuralgia, dysmenorrhœa. Inferior to
rgot in labor-pains or after-pains. ʒj doses (B.). *Conium*, in cancer, rheu-
atism, neuralgia, etc. (R.); also for the fulgurant pains of locomotor ataxia,
hronic alcoholism, sciatica, phthisis, etc., doses of ♏x of a fluid extr. of the
nripe fruit, every ½ hour, well watched (Madigan). *Iron*, with Belladonna,
r the wandering pains of anæmia, in which morphine is dangerous and
romides useless (Waugh). *Antipyrine*, a most efficient analgesic, may be ad-
inistered hypodermically. Is especially adapted to neuralgiæ, migraine, and
outy pains. (See *ante*, page 106.) *Theine*, of very great value for neuralgic
ain, affects the nerve outwardly along its course from the site of the injection
Mays). *Chloroform*, locally, inferior to other local anæsthetics, two or three
rops on cotton into the ear for faceache or toothache; vapor on raw surface
f cancers, neuralgia of uterus, photophobic eye, etc., by inhalation in renal
nd biliary colic, and to produce general anæsthesia, which see (R.). *Ether*,
pray for local anæsthesia; inhaled for general anæsthesia (R.). *Carbolic Acid*,
s local anæsthetic (R.). *Cocaine*, as a local anæsthetic to mucous surfaces, or
ypodermically for minor operations involving a small area, as circumcision,
ye operations, etc., has no equal; a 4 per cent. solution of the hydrochlorate
generally employed (R.); has many applications, as odontalgia, otalgia, neu-
algia of superficial nerves, etc., etc. *Iodoform*, as suppository in painful dis-
ases of the rectum or bladder (R.). *Stramonium*, is used as ointment (R.).
uboisine, used instead of atropine (B.). *Rhatany*, relieves the pain of ulcera-
ive disease of mucous membranes, pain of burns, ulcers, and especially of
listers (Tr.). *Cannabis Indica*, formerly used (B.). *Aquapuncture* (B.). [See
EURALGIA.] *Galvanism*, of an affected nerve gives certain relief. Positive
ole on point of emergence; negative over superior ganglion of cervical sym-
athetic (B.). *Heat*, if pain is without fever or inflammation (B.); warm injec-
ions soothe the pain of cystitis, prostatitis and abdominal pains generally (B.).
old, when pain is inflammatory (B.). [See AFTER-PAINS, ANÆSTHESIA,
OILS, CHEST-PAINS, COLIC, GASTRALGIA, HEADACHE, HEPATALGIA, INFLAM-
ATION, LUMBAGO, MYALGIA, NEURALGIA, ODONTALGIA, OTALGIA, RHEUMA-
ISM, etc.]

Prescription.

℞. Antipyrinæ, ... gr. xv.
Aquæ Destil., ... ♏xv.
Cocainæ Hydroch., ... gr. ss.

M. Sig.—One-half as hypodermic injection, or the whole when rapid action desired. (*Sée.*)

Paralysis.

Strychnine, gr. $\frac{1}{60}$ to $\frac{1}{30}$ [gr. $\frac{1}{80}$ to $\frac{1}{12}$ (R.)]; also hypodermically into
he affected muscles,—for hemiplegia, paraplegia, local, mercurial, paludal,
heumatismal, facial, infantile, and diphtheritic paralyses; in that of spinal

muscles of bladder and all local forms (B.). ; often of use in hysterical (P.) ; all forms, except, according to Barwell, in cerebral and spinal paralyses (R.). *Nux Vomica*, in hysterical, and in that from lead-poisoning ; only in chronic cases (P.) ; in paraplegia from softening and wasting of cord (Brown-Séquard). *Hyoscyamine*, gr. $\frac{1}{32}$ gradually increased to $\frac{1}{15}$ in par. agitans, locomotor ataxia (B.). *Rhus Toxicodendron*, certainly efficacious in cases depending on rheumatism (P.) *Ammonium*, the iodide and carbonate to aid in absorption of thrombi and thus promote cerebral nutrition in cases of incipient hemiplegia, due to endarteritis deformans reducing the lumen of the vessels in the brain (B.). [See formula below.] *Arnica*, paralysis of the bladder, and many forms (P.). *Phosphorus*, with cod-liver oil in paralysis agitans, small doses ; also in the paralysis of white softening of the brain (B.) ; in hysterical paralysis (R.) ; in myelitic paraplegia from excessive venery ; the only drug which really affects the nerve-centres (W.). *Belladonna*, when depending on chronic inflammation of the cord (R.) ; externally as ointment along spine, with Ergot internally (Brown-Séquard). *Physostigma*, into the eye in ocular paralyses (B.) ; in general paralysis of the insane, also in progressive muscular atrophy without much mental disorder, long-standing hemiplegia, paraplegia, locomotor ataxia (R.). *Coniine*, in some cases of paralysis agitans (B.). *Ergot*, in paralysis of bladder from over-distention (B.) ; paralytic dysuria, sensation of but partial emptying of bladder (P.) ; said to be useful in paraplegia (R.) ; in paraplegia complicated with menstrual irregularity and forms of paralysis arising from spinal congestion (Wa.) ; has cured cases of constipation of the paralytic when all the most powerful cathartics failed (Curran). *Cocculus Indicus*, valuable in hemiplegia, paraplegia, and paralytic stiffness (P.). *Ignatia*, in paralysis of lower extremities (P.). *Cannabis Indica*, for retention of urine from spinal disease (R.). *Capsicum*, in ½ to 2-grain doses every 4 hours as general stimulant (P.). *Colocynth*, in cerebral paralyses, sometimes seems to act favorably upon principles of revulsion or counter-irritation (P.). *Mustard*, as an emetic to stimulate failing heart in certain forms of paralysis (P.). *Senega*, in rheumatic, is a powerful help (P.). *Nutmeg*, the oil as external stimulant (P.). *Oil of Bay*, has been given ; is obsolete (P.). *Cajuput Oil*, efficacious in palsy (P.). *Counter-irritation*, by blistering fluid in peripheral paralysis of the 7th nerve (R.). *Cod-liver Oil*, Anstie insists on it when low nutrition and faulty assimilation (B.). *Galvanism*, in hemiplegia and many forms (B.). *Electricity*, faradization of the muscles affected. Localized electricity probably of more importance in confirmed spinal paralysis than medicinal treatment. *Massage*, in infantile paralysis, given with lacto-phosphate of calcium and cod-liver oil. Strychnine injected into the muscles (B.). [Compare. HEMIPLEGIA, LOCOMOTOR ATAXIA, TONGUE.]

Prescriptions.

℞. Strychninæ Sulph., ... gr. ij.
Aquæ Destillatæ, ... ℥j.
M. Sig.—For hypodermic administration : ♏v = gr. $\frac{1}{45}$ of strychnine sulphate.

℞. Ammonii Iodidi, ... ʒj.
Ammonii Carbonatis, . . . ℥ij.
Liq. Ammonii Acetatis, . . ℥vj.
M. Sig.—A tablesp. thrice daily. Se
Ammonium, above. (B

Parotitis.

Aconite, in febrile conditions (R.). *Mercury*, ⅓ grain of gray powder, or 4 times a day very useful, relieving pain and swelling (R.). *Poultice* flaxseed meal, a good local application for gland. *Leeching*, often gives speed relief, when pain is great and resists hot fomentations (Wa.). *Care* to avoid chilling, important. *Incision*, when suppuration occurs. *Stimulants* and *Tonics* internally are very necessary in symptomatic parotitis, occurring as a complication or sequel of other diseases, with adynamic symptoms.

Pediculi.

Mercury. Citrine ointment or wash of corrosive sublimate, for lice on all parts of body. The oleate destroys lice immediately, and also kills the ova (R.). For crab-lice the ordinary blue oint. is very disagreeable, and often toxic in its effect on the patient. A better preparation is Calomel in 5 per cent. oint., or the Bichloride, a 1 per cent. solution in alcohol, of which a teasp. to a pint of water, as bath to parts twice daily. *Cocculus Indicus,* destroys pediculi (P.); the tincture undiluted as a wash. *Staphisagria,* as oil or ointment of the powder (R.); "lice-bane" (P.); the tincture a very efficient application, and much more cleanly than an oil or an ointment. *Acetum.* Vinegar will kill the nits, as it softens the adhesive chitin by which the ova are glued to the hairs. *Ether,* washed over the parts, effectually destroys crab-lice. *Tobacco,* a decoction of the leaf is an efficient application, but requires care, especially if the surface is abraded (Wa.). *Essential Oils,* will kill, as rosemary, anise (P.); or powdered pyrethrum (R.). *Cleanliness,* cannot be dispensed with, and in many cases may alone be sufficient. Boil underclothing. *Isolation* of person, and of brushes, towels, etc., to prevent infection. In Vienna the following prescriptions are much used;—

Prescriptions.

℞. Bals. Peruvian.,
Petrolei, ... āā part. xv.
Oil of Laurel, . . . part. j.

To be applied and washed off after 3 hours.

℞. Ac. Salicylici, . . part. ij–iij.
Toilet Vinegar, . . part. xxv.
Alcohol (80 per cent.), part. lxxv.

To be rubbed on with a bit of flannel. Once often enough.

Pemphigus.

Arsenic, is curative, especially when chronic (B.); largest dose, ♏v liquor arsen. 3 times a day, on full stomach (R); exercises a powerful influence (Wa.). *Mercury.* Citrine ointment is largely used (Wa.). *Potassium Iodide,* improves the condition in pemphigus (Wa.); with good, simple diet; quinine, cod-liver oil, etc. *Silver Nitrate,* in pemphigus, after the bullæ have burst, and excoriations remain (gr. ij ad ℥j aquæ) (Wa.). *Water Dressings,* on lint, covered with oiled silk, constantly, in pemphigus and rupia (Wa.). *Cod-liver Oil,* with nutritious diet, is a powerful auxiliary to treatment (Wa.) *Puncturing* the blebs and evacuation of their contents is necessary as soon as formed. Then dusting-powders of zinc oxide, starch, or buckwheat flour, or lotions of liquor plumbi subacetatis dilutus.

Pericarditis.

Aconite, when violent throbbing and extreme pain (R.); of great value, if given early (P.); proves in the highest degree serviceable, when object is to diminish vascular excitement or irritability (Wa.). *Spigelia Anthelmia,* useful in rheumatic pericarditis (P.). *Digitalis,* when rapid and feeble heart, cyanosis and dropsy (P. N.); in second stage when heart flags, a tablespoonful of the infusion every 4 hours is beneficial. *Bryonia,* exceedingly valuable in second stage, that of exudation; fully equals any remedy in pericarditis (P.). *Opium,* regularly in grain doses, every 3, 4, 6, or 8 hours, is very beneficial (Wa.). *Veratrum Viride,* extract made by inspissating the juice of the root, of which gr. ij, with j of calomel, every 2 hours, valuable (Waring-Curran). *Quinine,* gr. xv–xx may suppress an acute attack, if given at critical moment (B.); may be used as an antipyretic. *Counter-irritation,* has been much abused; useful at commencement, but not in acute inflammatory stage (B.). Iodine painted over the cardiac region, or flying blisters in the second stage. *Iron,* the tincture in full doses may be required in the second stage. *Poultices,* large, hot, often renewed (R.). *Ice* may be used instead of poultices in the early stage. *Paracentesis* by aspiration may be required in the second stage. [Compare ENDOCARDITIS.]

Periostitis.

Mezereon, in the rheumatic and scrofulous form (P.). *Mercury and Morphine*. The oleate externally (R.). *Potassium Iodide*, in syphilitic children, also in non-syphilitic periosteal thickening (R.); holds the first place for syphilitic affections of the bones (Wa.). *Ammonium Iodide*, cures periostitis most readily when syphilitic (Wa.). *Staphisagria*, when long bones affected (P.). *Iodine*, the tincture, or blisters locally of great service in chronic form (R.); under the external use of Iodine it often rapidly improves (Wa.). *Poultices*, after an early and free incision, when suppuration takes place (C.). *Incisions*, carried deeply, should be made without waiting for fluctuation, when great tension exists and there is a tendency to suppuration. The sides of the abscess should then be brought together with compresses and a bandage (Gross). *Tonics* and stimulants, as milk-punch, quinine, iron, and opium, in full and sustained doses, are imperatively demanded in many cases (Gross). [Compare NODES, ONYCHIA.]

Peritonitis.

Aconite, of great utility when sthenic reaction; see *Opium* (B.); should be given early in all inflammations of serous membranes (P.). *Bryonia*, exceedingly valuable in second stage, when exudation (P.). *Mercury*, when tendency to fibrinous exudations, is employed with good effect (W.). *Opium*, to quiet intestinal movements (R.); by far the best agent (P., B.). Morphine, gr. ½ hypodermically, will often abort, if given early. Aconite and Opium, the tinctures, gtt. ij of the former with gtt. vj of the latter, in water every hour or two; a larger dose of opium if pain is severe (B.). Large doses easily borne in this affection (Wa.). *Cocculus Indicus*, for tympanites; a few doses will often remove the pain and relieve distention (P.). *Quinine*, strongly urged by Trousseau; is naturally indicated in most inflammations (P.). *Turpentine*, for tympanites (P.); turpentine stupes, v–xv drops of turpentine on flannel wrung out of hot water during acute stage, then blisters for a short time (B.). *Leeches*, to abdomen, if patient plethoric, and sthenic reaction, relieve pain (B.). *Purgatives*, are inadmissible when from perityphlitis or inflammation of appendix vermiformis (B.). *Poultices*, large, hot, and frequently renewed. Should be thin, and covered with cotton-wool (R.). *Ice*, to abdomen (B.). Cold relieves (W.). *Water*, hot fomentations to relieve pain, sometimes cold compress better. *Ice*, sucked or swallowed, to assuage the vomiting; sips of cold water. *Diet*, after acuteness of attack passed, should be mild and unstimulating. [Compare PUERPERAL PERITONITIS.]

Perspiration.

Belladonna, as liniment locally, also the tincture internally, especially in weakly children who sweat profusely (R.). *Atropine*, gr. $\frac{1}{200}$ to $\frac{1}{100}$ hypoder. (or in exceptional cases even gr. $\frac{1}{20}$ in pill) in sweating of phthisis and exhausting diseases (R.); gr. $\frac{1}{60}$ at bedtime for sweats of phthisis (B.). *Jaborandi*, gr. $\frac{1}{20}$ of pilocarpine, thrice daily, checks profuse perspiration (R., Pf.). *Naphthol*, in a 5 per cent. ointment or alcoholic solution, is a very efficient application for local sweating (Kaposi). *Potentilla Sarmentosa*, the Cinquefoil, an infusion of the vine, leaves and root, may be drank ad libitum, and is a very efficient remedy for night-sweats, having stopped them when Atropine failed to relieve (Pope). *Agaricine*, is used very successfully. (See formula below.) *Salvia*, the ordinary sage-tea is very efficient, used internally and locally by sponging the body. The infusion for night-sweats of phthisis (Da C.). *Quinine*, in exhausting diseases. In many, a night-draught of quinine, sulphate of zinc, and sulphuric acid, useful (R.). *Opium*, as Dover's powder, may succeed in profuse colliquative sweating (R.); a fact, though hard to account for it (Wa.). *Aromatic Sulphuric Acid*, to check sweats of phthisis. Bad for digestion (B.). *Muscarine*, has been used with great success in the sweats of phthisis and of other morbid states (R.). *Zinc Oleate*, rapidly controls excessive and offensive sweating on slight exertion in the axillæ and groins, also the night-sweats of phthisis (Murrell). *Zinc Oxide*, gr. iij, with gr. ss of ext. belladonnæ, in a pill at bedtime for the sweats of phthisis (R.). *Gallic Acid*, is very useful for the same condition, and may be combined with extract of belladonna (B.). *Tannic Acid*, may also be used with benefit. *Aluminium*, the oleate, checks hyperidrosis and antiseptizes the sweat, thus forming a useful application to the axillæ and groins of children (Wa.). *Potassium Permang.*, gr. j–ʒj, for fetid perspirations of axillæ, feet, etc. (B.). *Salicin*, profuse sweats of hectic fever (Wa.). *Salicylic Acid*, in solution with borax, the most agreeable and efficient deodorant for fetid perspirations (B.). *Carbolic Acid*, 2 parts to 3 of glycerin and water, twice daily for fetid sweat (Wa.). *Oils*, rubbed into the whole skin to prevent sweating accompanying exhausting diseases, as phthisis; but sponging with a weak acid wash better (R.). *Ergot*, said to arrest sweating (R.). *Sponging*, with acidulated water, or very hot sponging in phthisis (R.). [Compare FEET.]

Prescriptions.

℞. Acidi Gallici, ... gr. xxx.
Ext. Belladonnæ, ... gr. ij.
M. ft. pil. no. x. Sig.—Two pills at bedtime (B.). For sweating of phthisis.

℞. Acidi Tannici, ... gr. xxx.
Pulv. Digitalis, ... gr. xv.
Ext. Cinchonæ, ... q. s.
M. ft pil. no. xx. Sig.—One pill at bedtime.

℞. Agaricinæ (Merck), . . . gr. x.
Atropinæ Sulph., . . . gr. j.
Ac. Sulph. Aromat., . . . ♏1200.
Solve et filtra.

Dose, ♏x in syrup or simple elixir, 5 or 6 hours before retiring, as action is slow.

Pertussis.

Aconite, in all acute congestions (P.); as a preventive or abortive remedy very efficient, when associated with ipecac. and cherry-laurel water (Dervieux). See formula below. *Amyl Nitrite*, with Carbolic Acid, in steam atomizer, has proved a very efficient inhalation (Bayliss). *Ipecacuanha*, useful in many cases (R.); ♏j for 5 years of age, every hour or two, with the greatest relief (P.); when bronchitic or pneumonic complications, combined with ammonium bromide (Wa.). *Pulsatilla*, gr. ½–j of anemonine (P.). *Belladonna*, obviously of value in febrile stage, is of special use when dentition is in progress; relieves the congestion of air-passages and also the determination of blood to the head (P.); good when profuse bronchial secretion; best in spasmodic stage. Children bear this drug well; ♏x of tinct. may be given hourly to a child 2 or 3 years old (R.). *Benzoate of Sodium* is highly efficient. See formula below. *Conium*, or the Hydrobromate of Coniine, in doses of gr. $\frac{1}{30}$ to gr. $\frac{1}{8}$ according to age, a very efficient remedy (W.). *Drosera*, small doses are very effective (Murrell). *Chamomile Oil*, a very useful remedy (P.). *Coccus Cacti* (Cochineal), in doses of gr. ⅓ thrice daily for infants, has been highly recommended (W.); proves very effective in most cases. *Hydrocyanic Acid*, very serviceable in cough by habit, after cessation of whooping-cough proper, or in nervous sympathetic cough of mothers (B., P.). *Opium*, in convulsive stage, to produce and maintain slight heaviness (R.). *Cocaine*, a 5 per cent. solution, painted on tonsils, fauces, back of tongue, and if possible on larynx, is very efficient (Labrie). *Bromides*, relieve spasmodic element (B.); that of ammonium will readily cure many cases; gr. ij or iij ter die for infants (Wa.). *Lobelia*, in spasmodic stages; well tolerated by children; ♏x of tinct. every hour for child 2 years old; also additional dose when cough is imminent (R., P.). *Alum*, when acute stage over and no complication, gr. ij–vj every 3 hours, or less every hour in glycerin or honey (R.). *Chloroform* or *Ether*, to lessen severity of the paroxysms; as inhalations (R.). *Chloral*, gr. v–x in spasmodic stage, relieves quickly (B.); gr. iij–viij every 4 hours (Porter). *Carbolic Acid*, as vapor, with steam atomizer; found to be very beneficial (J. L. Smith). *Castanea*, a decoction of chestnut leaves has been used with much success; dose ad libitum (B.); the fluid extract, in ʒ-doses, exercises a remarkable influence over the cough (W.). *Valerian*, said to control the paroxysms (R.). *Nitric Acid*, well diluted in sweetened water, after the subsidence of the catarrhal stage (B.). *Gelsemium*, in spasmodic stage (B.). *Mono-bromide of Camphor*, gr. v in mucilage and syrup. tolu. 3 or 4 times a day, has been very serviceable (B.). *Zinc Sulphate*, gr. ¼–j with ext. belladon. gr. ⅙–½, has varying degree of success (B.). *Lactucarium*, the syrup as vehicle for cough-mixtures (B.). *Quinine*, in solution, locally to fauces (Dawson); the tannate with sodii bicarb. of each 5, and pulv. acaciæ 100 parts, used with an insufflator (Pollack). *Petroleum*, on rags around head of the bed, is recommended highly by Hildebrandt. *Silver Nitrate*, when acute stage passed (Tr.); probably inferior to alum (Wa.). [Compare COUGH.]

Prescriptions.

℞. Chloralis, ... ʒj.
Potassii Bromidi, ... ʒij.
Syr. Pruni Virgin., ... ℥j.
Aquæ, ... ℥j.
M. Sig.—A teasp. thrice daily for infants in the convulsive stage.
(*Dessau.*)

℞. Ext. Aconiti, ... gr. j.
Syr. Ipecacuanhæ, ... ♏xlv.
Aquæ Laurocerasi, . . . ʒj.
Mucil. Acaciæ, ... ℥vjss.
M. Sig.—A teasp. to a tablesp. according to age, every hour.
(*Dervieux.*)

℞. Olei Morrhuæ,
Mellis Despumat.,
Succi Limonis, ... āā p. æq.
M. Sig.—A teasp. or two as required.
(*Sir Wm. Gull.*)

℞. Sodii Benzoatis, ... gr. lxxx.
Aquæ Menth. Pip.,
Aquæ Destillatæ, . . . āā ʒx.
Syr. Aurantii, ... ʒij.
M. Sig.—A dessertsp. every hour or two.
(*Letzerich.*)

℞. Acidi Carbolici, ... ʒss.
Potassii Chloratis, ... ʒij.
Glycerini, ... ℥iv.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Use with steam atomizer thrice daily.
(*J. Lewis Smith.*)

℞. Amyl. Nitritis, ... ʒss.
Acidi Carbolici, ... ♏x.
Glycerini,
Alcoholis, ... āā ℥ss.
M. Sig.—Use by inhalation with stea[illegible]m atomizer.
(*Baylis*[illegible].)

Pharyngitis.

Aconite and *Belladonna*, for acute attacks (B.); when high temperature (R.[illegible]). *Belladonna*, is very useful ,relaxes the pharyngeal muscles (W.). *Capsicum*, [illegible] as gargle, ʒj ad O½ aquæ, in very early stage only (R.). *Alum*, gargles, in chron[illegible]ic inflammations (R.). *Silver Nitrate*, gr. v–xx ad ℥j, on sponge probang, su[illegible]cessful if systematically applied (B.); in early stage of inflammation; also i[illegible] in chronic on brush, or as spray (R.). The solid stick to each diseased follicl[illegible]le, after scraping (A.). *Ammonium Chloride*, gr. ij with ♏xv of tinctura cubeb[illegible]æ, every half-hour, often controls acute pharyngitis; when a gouty diathesis exis[illegible]sts add ♏x of the ammoniated tincture of guaiac, and give every hour (A. [illegible] A. Smith). *Xanthoxylum*, a decoction of the bark locally to throat, and a ♏x–xx[illegible]xx of the fluid extract thrice daily, a very successful remedy for chronic pharyngit[illegible]itis (B.). *Tannin*, insufflation to affected surface (B.). *Cubebs*, powdered, locall[illegible]lly, useful (B.). *Glycerin*, pure, locally, with tannic acid, very serviceable (B.); [illegible] in chronic inflammation of the throat (R.). *Hydrastis*, the fl. extr., locally, a[illegible]nd gtt. v–x per stomach (B.). *Alcohol*, dilute, gargle in relaxed throat (R.). *Cim[illegible]micifuga*, when pharynx dry and spotted over with inspissated mucus (R.). *Ip[illegible]pecacuanha*, the wine as spray in non-inflammatory sore throat, with hoarsene[illegible]ess from congestion of vocal chords (R.). *Pomegranate Bark*, as gargle (P[illegible]P.). *Potassium Chlorate*, as lozenge to stimulate the follicular secretions to a healt[illegible]hy condition (A.) *Iron*, *Quinine*, and *Strychnine*, as tonics, are mainly indicat[illegible]ed (A.). *Zinc Sulphate*, as gargle, occasionally employed in relaxed throat (P[illegible].). *Inhalation* of vapors, or of pulverized fluids, by the atomizer, found very be[illegible]e-ficial (Wa.). *Food*, of piquant kind, spices, pepper, mustard, etc., should be strictly prohibited. All fluids should be used at a moderate temperature (A.). *Water*, by throat compress, relieves; also in daytime, in obstinate cases. *Rest* to voice, and cultivation of beard, are useful aids.

Prescriptions.

℞. Tinct. Aconiti,
Tinct. Belladonnæ, . āā . ʒ ss.
Tinct. Guaiaci Ammon., ℥ v.
Syr. Limonis, ... ℥ ss.
Aquæ Cinnamomi, . . *ad* ℥ iv.
M. Sig.—A teasp. every 3 hours for acute pharyngitis.

℞. Tinct. Aconiti, ... ʒ ss.
Ac. Hydrocyan. Dil., . . ♏ xl.
Liq. Ammonii Acetat., . . ℥ iv.
M. Sig.—Teasp. every 2 or 3 hours according to the severity of the case. In acute and subacute pharyngitis.

℞. Aluminis, ... gr. xxx–℥ ij.
Sodii Boratis, ... ʒ jss.
Glycerini, ... ʒ ij.
Tinct. Myrrhæ, . . . ℥ ij.
Aquæ, ... q. s. *ad* ℥ iv.
M. Sig.—Use as an astringent gargle, 4 or 5 times a day.

℞. Acidi Tannici, ... gr. lx.
Alcoholis, ... ♏ xxx.
Aquæ Camphoræ, ... ℥ iv.
M. Sig.—An astringent gargle, to be used several times a day.

Phimosis.

Belladonna, as ointment, extract vij–ad xx of lard, has proved effectual (Wa.). *Lupulin*, 5–15 gr. doses, of advantage after operation, to keep penis at rest (Wa.). *Surgical.* Division of the prepuce by a bistoury and director; circumcision (D.). *Cocaine*, a 4 per cent. solution injected at several points around edge of prepuce, as local anæsthetic during the operation of circumcision. *Chloroform*, or *Ether*, may be used as anæsthetic in paraphimosis, before attempting reduction (Wa.).

Phlebitis.

Hamamelis, has as decided an influence on the venous system as Aconite on the arterial (Pf.). *Mercury*, in frequent and liberal doses, to early and decisive constitutional impression, the best form being Calomel, or Calomel and Blue Mass (Gross). *Rest*, fomentations, poultices, early incision of abscesses, aperients, opium to relieve pain and insure quiet of mind and body (D.). *Blister*, over course of an inflamed superficial vein (R.). *Diet*, nutritious, and wine, especially if great loss of blood (D.) *Stimulants*, as Quinine and Iron, especially the tincture of the Chloride, also milk-punch, are needed to combat the depression which is sure to arise. The disease is always dangerous and often fatal (Gross). *Incisions*, must be freely made if abscesses form, and the internal organs watched for multiple abscess. *Ulceration*, if it occur, must be watched for hemorrhage, which should be arrested by compression and styptics (Gross). [Compare PHLEGMASIA, VARICOSIS.]

Phlegmasia Alba Dolens.

Belladonna, and Mercury, equal parts, as ointment, often of much benefit (Wa.). *Hamamelis*, has specific action on venous system (P.); extolled by Dr. Preston (R.). *Blisters*, in early stage; are extremely useful if judiciously employed (L.). *Ammonium Carbonate*, often valuable where great prostration; full doses (Wa.). *Creasote*, injections daily (Wa.). *Hydrochloric Acid*, ʒj of dilute acid in Oij of barley-water, with ℥ss of potassium chlorate, to be taken daily (Mackenzie). *Opium*, large doses internally, with leeches and anodyne ointments (Wa.); laudanum, if pain severe, sprinkled on hot fomentations (L.). *Leeches*, of great service during the acute inflammatory stage (Wa.). *Bandaging*, when the more acute symptoms subside; at first with flannel, afterwards with ordinary roller bandage (L.). *Regimen*, should be tonic (L.) *Water*, compresses in active stage; douches, hot and cold in chronic form.

Phlegmon.

Aconite, or *Belladonna*, are certainly efficacious. Aconite best (R.). *Sulphides*, to abort, or, if inevitable, to promote; gr. ss–j every hour or two of Potassa Sulphurata (B.). *Silver Nitrate*, strong solution may check if applied early in the vicinity (B.). *Carbolic Acid*, injections; a 2 per cent. solution (B.); used with great success (W.). *Iodine Injections*, after evacuation (B.). [Compare ERYSIPELAS.]

Photophobia.

Atropine, a neutral solution of the sulphate, gr. j ad ℥j, for adult, dropped into the eye every 4 hours (C.). If much lachrymation, so as to dilute the solution, it may be applied more frequently. In some cases belladonna irritates and has to be abandoned (Wa.). *Conium*, in scrofulous photophobia, gr. ss of Coniine in ʒj of Ol. Amygdalæ, locally twice or thrice daily; or the vapor of Coniine (Wa.). *Mercury*, Calomel by insufflation (C.). *Canthoplasty*, for the spasm of the orbicularis in severe photophobia (C.). *Glasses* of cobalt blue, the best (R.). *Arsenic*, in the condition described by old writers as strumous ophthalmia, with its attendant photophobia, is very valuable as an internal remedy (C.). *Chloroform*, the eye exposed to the vapor of a few drops in severe photophobia will be speedily relieved (Jones). *Croton-Chloral*, gr. v–x, in young people and those suffering from syphilitic corneo-iritis (Bader). *Potassium Chlorate*, internally, is most useful in some cases (Vernon). *Cocaine*, a solution of the hydrochlorate, from 2 to 4 per cent., a few drops upon the conjunctiva, will be found promptly efficient in most cases.

Phthisis.

Creasotum, gives excellent results (Bouchard); is directly curative, at least in the initial stage of the disease (Fräntzel); promotes the sclerotic change by means of which recovery is found to occur (Jaccoud); Morson's beechwood creasote should be used, in doses of ♏j in whiskey and glycerin, every 3 or 4 hours. Should be largely diluted to prevent irritation, and continued for many months,—relieves cough, diminishes expectoration, stops night-sweats, increases weight, decreases fever, promotes appetite, and in many cases improves the local condition, as shown by the physical signs (Robinson). Creasote, tar or carbolic acid, to check expectoration (R., P.); Creasote is often curable in many forms, gr. iij in a pill with Bals. Tolu., three or four times daily, the dose being increased until urine is darkened; or it may be inhaled with Iodine from hot water (B.). *Iodine*, or *Iodoform* with creasote, carbolic acid, eucalyptus, chloroform, alcohol and ether, as combination for an antiseptic inhalation (Br.); extremely useful; also as intra-pulmonary injection, a solution of the compound tincture of iodine 1 to 4 of distilled water, of which ♏x–xx injected once every 4 or 5 days, through the 1st, 2d or 3d intercostal spaces, anteriorly or in the axillary region, avoiding the pericardium and great vessels (Robinson). *Iodoform* internally, has proved extremely effective in all forms, as witnessed by numerous observers in various countries (S. Smith); though not one of the most active germicides, it is very destructive to the bacillus tuberculosis (B.). *Iodol* may be advantageously substituted for Iodoform (B.). *Cod-liver Oil*, holds first rank as a remedy and food in the chronic forms; a teasp. after meals ter die is enough; when not well borne may be combined with aqua calcis, comp. tinct. of gentian; or, when not digested, with ether (B., R.); is of great utility by improving nutrition, and by affecting the tubercle; give ℥ss thrice daily one hour after meals, with ♏x–xv of Ether, or an equal quantity of malt or whiskey; do not give it in hot weather (DaC.). *Terebene*, with Thymol and Carbolic Acid, equal parts of each, and ʒss to a pint of hot water as an inhalation: is extremely useful for the dyspnœa (Camman). *Aconite*, in small doses for the irritative fever, is a remedy of much value (Da Costa). *Antipyrine* in a 2½ grain dose hourly for 3 doses daily, for the hectic fever (Pribram). *Cinchona*, for the hectic and sweats, gr. xv–xx quinine (B.); if small doses fail, a dose of 6 or 8 grains at once, or in portions repeated hourly (R.) *Ipecacuanha*, spray to throat when bronchial asthma and emphysema combined with fibroid phthisis (R.). *Opium*, or *Morphine*, in a viscid vehicle for cough, or morphine lozenges when cough due to inflamed throat (R.); must in time be given for the cough, which is an irritative one. *Codeine*, gr. $\frac{1}{8}$ to $\frac{1}{4}$ in simple elixir, is useful and does not constipate (Da C.). *Alcohol*, an important remedy; may be given with cod-liver oil; or spt. frumenti ℥j–℥ij with some bitter, immediately after meals, or the stronger wines. If it disagrees, it harms. Curiously, it induces an intractable form of phthisis (B.). *Verbascum*, the Mullein-plant, has long been a popular remedy in phthisis; it facilitates expectoration, improves the general condition, and palliates the cough. *Calcium Phosphate*, in diarrhœa, and in chronic forms of phthisis, with little or no fever (R.). *Iodine*, should be more used than it is; the compound solution, gtt. j–iij thrice daily, or when anæmia and not much fever use Iodide of Iron, gr. xv of the syrup pushed to ʒj ter die (Da Costa); as inhalation in chronic phthisis; to lessen expectoration and cough; also as liniment painted under clavicles, to allay harassing cough, and to check secretion (R.). *Cimicifuga*, useless in tuberculosis, but in phthisis it relieves cough, improves appetite, lessens intercurrent bronchitis, and so improves the patient's general condition (Wa.). *Arsenic*, valuable in chronic forms as is no other remedy; but not in caseous, or where much hectic; may be given by stomach or fumigation (B.). [See under ASTHMA.] As cigarettes, useful in the diarrhœa, probably diminishes temperature; caution required (R.); of great value in early stage, in later stages it is of no avail. Arsenious Acid, gr. $\frac{1}{40}$, or ♏iij of Fowler's solution, thrice daily (Da Costa). *Cocaine*, locally, for the throat symptoms, to be applied just before meals are eaten (Da C.). *Sulphurous Acid*, by inhalation, spray, or fumigation, in chronic phthisis (R.). *Sanguinaria*, helps expectoration, and revives the enfeebled stomach (P.). *Chloroform*, with glycerin or honey, for the cough in fibroid phthisis (R.). *Ferrum*, often prescribed; has no especial influence on deposit (B.). Prescribed in tuberculosis (Tr.). Liquor Ferri Perchloridi, ʒj ad ℥j aquæ, the most serviceable local application in laryngeal phthisis, diminishing irritability of the mucous membrane, and quieting cough (Mackenzie). *Mercury*, gr. $\frac{1}{100}$ of corrosive sublim. every two or three hours, for the diarrhœa (R.). *Benzoin*, as inhalation, to lessen cough and expectoration (R.). *Acids, Mineral*, for the indigestion. The acidum muriaticum dilutum (B.). *Prunus Virginiana*, the wild cherry has a domestic reputation, probably due to its influence over cough; the syrup is much used as vehicle for cough-mixtures (B.). *Hypophosphites*, are very useful in chronic cases (B.); have no special effect (Da C.). *Digitalis*, as antipyretic; deranges intestinal canal, therefore injurious in phthisis (B.). *Phosphate of Copper* in nascent form soluble in an alkaline body, is held to be specific by Prof. Luton of Rheims. His formula contains Neutral Acetate of Copper 0.15, Cryst. Phosphate of Sodium 0.75, Glycerin and Pulv. Licorice, āā q. s. for one pill. *Copper Sulphate*, gr. $\frac{1}{12}$, or *Silver Nitrate*, gr. $\frac{1}{4}$, or *Bismuth*, gr. xx, for the diarrhœa (Da C.). *Gaseous Enemata*, Bergeon's treatment, made a noise for a few months, but soon fell into contempt. *Baths*, sea-bathing, if chronic, little or no fever, without active deposition of tubercle, or scrofulous pneumonia; Turkish baths for the cough (R.). *Grape-cure*, is serviceable (B.). *Aliment*, should be nutritious and digestible, malt liquors better than wine or spirits. Extract of malt, cod-liver oil, plenty of meat, and alcohol in moderation (Da C.). Warm clothing, bathing and friction of skin, moderate exercise, and a suitable climate. *Forced Alimentation* when anorexia appears, and super-alimentation at all times, necessary to successful treatment. Washing out the stomach daily by syphon-tube, with warm water alkalinized with borax, and then feeding through tube (Robinson). *Climate*, the best by far is that of Egypt, or Algeria; next coming New Mexico, Southern California, especially in the desert along the Colorado River, South Carolina, and portions of Georgia and Florida; the latter being especially suitable for cases having a co-existing bronchitis. For some cases Colorado is very good, and the Adirondack region for early cases in which there is no tendency to hemorrhage (Da Costa). [Compare COUGH, HEMOPTYSIS, HECTIC FEVER, PERSPIRATION.]

Prescriptions.

℞. Quininæ Sulphatis, . . . gr. xviij.
Pulv. Digitalis, ... gr. vj.
Pulv. Opii, ... gr. iij.
M. ft. pil. no. xij. Sig.—One pill thrice daily, for the irritative fever. (*Niemeyer.*)

℞. Pepsini (Jensen), ... gr. xl.
Ac. Hydrochlor. Dil., . . ʒijss.
Glycerini, ... ʒv.
Succi Limonis, ... ℥iv.
Aq. Aurantii Flor., . q. s. *ad* ℥iv.
M. Sig.—Dessertspoonful with meals for the dyspeptic symptoms.

℞. Creasoti (beech-wood), . . ♏vj.
Glycerini, ... ℥j.
Spt. Frumenti, ... ℥ij.
M. Sig.—For one day's use, as directed, in ℥ss doses. (*Robinson.*)

℞. Iodoformi, ... gr. xxiv.
Creasoti, ... ♏iv.
Ol. Eucalypti, ... ♏viij.
Chloroformi, ... ♏xlviij.
Alcoholis,
Etheris, ... āā q. s. *ad* ℥ss.
M. Sig.—10 to 20 drops on the sponge of perforated zinc inhaler, to be worn 20 minutes thrice daily. (*Brunton.*)

℞. Petrolei Massæ, ... ℥j.
Pulv. Cubebæ,
Pulv. Doveri, ... āā ℥ss.
Cinchonidinæ Sulph., . . . ʒij.
M. ft. massa, et div. in pil. no. cclxx. Sig.—One pill every 3 or 4 hours. (*Griffith.*)

℞. Codeinæ Sulphat., ... gr. v–viij.
Ac. Hydrocyan. Dil., . . ♏xx.
Syr. Tolutani, ... ℥ij.
M. Sig.—A teaspoonful several times daily, for the cough. (*Potter.*)

℞. Tinct. Belladonnæ, ... ʒij.
Syr. Scillæ, ... ʒij.
Morphinæ Sulph., ... gr. j.
Syr. Tolutani, ... *ad* ℥iv.
M. Sig.—Tablespoonful at bedtime, for cough and restlessness, to be repeated if necessary. (*H. Gibbons, Jr.*)

℞. Extr. Opii Fluidi, ... ʒj.
Syr. Rhei Aromat., ... ʒiv.
Syr. Glycyrrhizæ, ... ℥j.
Liq. Ammon. Acet., ... ℥v.
M. Sig.—Shake well. A teaspoonful every 2 or 3 hours. A soothing mixture, to quiet cough, allay nervousness, and stimulate the patient. (*Johnson.*)

℞. Iodoformi,
Creasoti,
Pulv. Benzoini,
Bals. Tolu., ... āā gr. j.
In pill, of such 2 to 4 daily. (*Huchard.*)

℞. Olei Morrhuæ, ... ℥ss.
Mucil. Acaciæ, ... ʒij.
Sacchari, ... ʒij.
Tinct. Lavandulæ Co., . . ♏xx.
Aquæ, ... ℥ss.
M. Sig.—Teaspoonful for children. An agreeable mixture. (*Farquharson.*)

[For a Cod-liver Oil Emulsion see formula on page 459.]

Pityriasis.

Alkaline and Tonic Remedies generally control mild cases, together with baths and emollients; the more severe ones requiring constant envelopment in oil, as linseed or cod-liver oil (Bulkley). *Mercury*, in obstinate cases, Donovan's solution of Arsenic and Mercury is highly successful (Wa.); the green iodide, gr. x to ℥j of lard, or a 5 per cent. solution of the oleate of mercury in oleic acid with one-eighth part of ether, applied by a camel's-hair brush (B.); citrine ointment, especially when the hairy parts of the face are affected (R.); an ointment of ammoniated mercury and calomel is very useful in ordinary cases of dandruff or pityriasis simplex (Bronson). *Sulphur*, ʒj of sulphur lotum to ℥j of vaseline applied every morning to the scalp, with sweet almond oil anointing at night (Jackson). *Soap*, the tincture of green soap as shampoo every morning for cleanliness, or Borax and water, or the yolks of three eggs beaten up in a pint of limewater with ℥ss of alcohol, all of which make good shampooing mixtures (Jackson). *Borax*, to cleanse the scalp, a saturated solution; or the glycerite of borax (R.). *Lead*, the liquor plumbi, with glycerin equal parts, and two parts of water, as lotion for cases where there is high in-lammation and abundant weeping (R.). *Carbolic Acid*, 2 parts to 3 of glycerin nd water, twice daily, with the daily use of a carbolized soap, is often effectual Wa.). *Sulphides*, ℥ss of Potassa Sulphurata to Oj of Lime-water, as a lotion, r the Bareges Pomade, see formula below (B.). *Baths*, frequently, and hard ubbing after shampooing the scalp; avoid stimulating food in bad cases, as ell as the use of a fine-toothed comb on children's heads. [Compare SEBOR-HŒA, and for PITYRIASIS VERSICOLOR, see TINEA VERSICOLOR.]

Prescriptions.

℞. Sodæ Sulphuratæ,
Sodii Carbonatis, . . . aa ʒ ij.
Axungiæ . . . . ℥ ijss.
M. Sig.—*Pomade de Bareges.*

℞. Hydrarg. Ammoniat., . . gr. xx.
Hydrarg. Chlor. Mitis, . . gr. x.
Petrolati, ... ℥j.
M. ft. unguent. Sig.—Local use.

Plethora.

Aconite, is useful for affections of plethoric subjects. Decidedly the best emedy for apoplexy in the plethoric (P.). *Arsenic*, used with advantage when etermination of blood to the head (Wa.). *Sulphur*, as mild purgative for lethora, from cessation of the menses (Wa.). [Compare ABDOMINAL PLE-HORA.]

Pleuritis.

Aconite, no remedy more effective prior to stage of effusion (R., P.). [See NFLAMMATION.] The tincture in doses of ½ drop every 3 hours to a child 3 ears old, for 2 or 3 days (J. Lewis Smith). *Veratrum Viride*. Opinions iffer as to whether it should be used in sthenic or asthenic forms (R.); gtt. iij of tincture every 3 hours, with a drop added to each dose until pulse educed or nausea (Wa.). *Bryonia*, exceedingly valuable in second stage; hould follow aconite (P.). *Tartar Emetic*, see INFLAMMATION. In early tages and young plethoric subjects, when much febrile action, small doses gr. $\frac{1}{16}$ to ¼) may be useful (Wa.). *Digitalis*, as antipyretic (R.); deranges ntestinal canal (B.); aconite preferred (P.); the tincture in doses of one drop very 3 hours to a child of 2 years old (J. Lewis Smith). *Potassium Iodide*, o promote absorption of effusions, steadily for a long time (R.); also chest painted with tincture of iodine, one day on each wall alternately; may be washed off with iodide of potassium, alcohol or ether (B.); as a diuretic to emove effusion (Clark). *Iodine*, also as injections, with great benefit and without risk, in empyema and hydrothorax (B., R.). *Quinine*, has abortive power, ncreased by combination with morphine (gr. xv + gr. ss); also as restorative onic in low-type cases (B.). *Opium*, cannot be too highly extolled (P.); is especially beneficial; gr. ss of morphine hypodermically at beginning will often ut short an attack. During the disease, its effects are very beneficial. A slight physiological effect should be maintained (B.). Morphine for severe pain (R.). *Burgundy Pitch*, plaster externally as a mechanical support (P.). *Asclepias*, he popular "pleurisy-root," is a favorite remedy in the south (W.). *Pilocarpus*, in subacute cases to remove fluids (Caro); or the nitrate of pilocarpine, gr. ¼ bis die, for children (Vigier); is too depressing and therefore unsafe (Smith). *Sodium Chloride*, ʒss in ℥j of water, flavored with licorice, in tablesp. doses every 3 hours, often very useful in causing absorption of pleuritic serous exudations; but is contraindicated when exudation is purulent (Br.). *Bloodletting*, by cups or leeches, useful by reason of counterirritation produced, and to relieve pain, only in robust sthenic cases (B.). *Blisters*, often greatly abused; are harmful during inflammatory stage (B). *Poultices*, large, hot, and frequently renewed (R.). *Water*, cold wet-pack to chest probably better than a hot one, pinned tightly to limit movement of chest-walls (B.). *Thoracentesis*, by aspiration, if the quantity of fluid seriously embarrasses respiration. [For CHRONIC PLEURISY see EMPYEMA, also compare HYDROTHORAX, PLEURO-PNEUMONIA.]

Prescriptions.

℞. Potassii Acetat., ... ʒj.
Infusi Digitalis, . . . *ad* ℥iv.
M. Sig.—Teasp. every 3 hours to a child of 4 or 5 years, in the second stage.

℞. Morph. Sulphat., ... gr. j.
Tinct. Aconiti, ... ♏xxiv.
Liq. Potas. Citratis, . . . ℥ij.
M. Sig.—A teasp. every 3 hours.

Pleurodynia.

Cimicifuga, curative when rheumatic, valuable in sympathetic cases from irritability of uterus (P.); or uterine derangements (R., Wa.). *Croton Oil*, in obstinate pleurodynia especially when blackened feces (R.). *Belladonna*, plaster or liniment; the latter generally best (R.). *Chloral*, made liquid with equal weight of camphor, rubbed in gently, often affords instant relief in severe pleurisy (R.). *Sodium Salicylate*, gr. xv–xx, every 2 or 3 hours, useful in most cases (Hughes). *Ether*, as spray, sometimes immediately and permanently removes the pain (R.). *Opium*, liniment rubbed in after warm fomentations (Wa.); or a hypodermic injection of morphine (R.). *Iodine*, as liniment painted on the chest, often relieves where mustard fails (R.). *Blistering*, often successful when other means fail; sometimes strong vesication necessary (R.). *Rest*, is important and may be obtained by strapping the affected side with strips of adhesive plaster. *Poultices*, very hot, followed by application of lint and oilskin. Belladonna liniment generally better (R.). *Mustard*, as a poultice, is generally efficient, and can be renewed when pain returns (R.). [Compare NEURALGIA, MYALGIA.]

Pleuro-Pneumonia.

Bryonia, often of great service; limits effusion and assists absorption (P.). *Carbolic Acid*, a 2 per cent. solution injected parenchymatously, once or twice a day, has had remarkable success (B.). *Sanguinaria*, as a contra-stimulant (P.). *Turpentine*, as a fomentation (P.). *Arnica*, the tincture in doses of ♏x every 3 or 4 hours, very useful in controlling the heart's action (Wa.). *Pilocarpine*, gr. ss, or ʒij of the tincture of Jaborandi, benefits cases of pleuro-pneumonia (Wa.). [Compare PNEUMONIA.]

Pneumonia.

Aconite, gives good results in catarrhal and fibrinous (B.); has marked effect (R.); very valuable in first stages (P.); in several cases it apparently cut short the attack (Wa.); to reduce circulation either Aconite or Veratrum Viride, until pulse is impressed (Da Costa). *Veratrum Viride*, valuable (P.); in the very incipiency (B.); opinions differ as to whether it should be used in sthenic or asthenic cases (R.). *Bryonia*, when pleural complications (P.). *Phosphorus*, especially when typhoid symptoms; approved by Fleischmann (R.). *Belladonna* is useful in the first stage (P.).; Harley esteemed it highly in pneumonia (Wa.); as an adjuvant to Digitalis in infantile pneumonia, to soothe the irritable nervous system and curtail superabundant secretion (Brown). *Tartar Emetic*, formerly given in large doses; now abandoned; small doses may be useful, but should be used with care, lest depression ensue (B.); at commencement with alcoholic stimulants, if patient be weak (R.); may benefit young, robust subjects (Wa.). [See PLEURITIS.] *Sanguinaria*, as a contra-stimulant, when fever abated, and graver symptoms have amended (P.). *Iodides*, none more efficient; the Iodide of Ammonium with Arsenic, to prevent caseation of inflammatory products (R.); *Ethyl Iodide*, gtt. v–xx ter die by inhalation, very valuable in catarrhal form (B.). The *Iodide of Sodium* is useful in catarrhal pneumonia (Da C.). *Ipecacuanha*, the wine in infantile pneumonia, should never be dispensed with, as it promotes expectoration, controls hemorrhage and regulates secretion (Brown). *Senega*, in advanced stages as expectorant, when cough is dry, irritating and painful, tightness and oppression of chest (P.). *Opium*, morphine by injection, sometimes needed for severe pain

(R.); opium is very desirable in many cases, relieves the symptoms and arrests delirium (Wa.). *Copper Acetate*, Kissel regards it curative; under it the mortality was only $4\frac{3}{10}$ per cent. *Ammonium Carbonate*, at crisis for depression; give in infusion of senega (B.); see formula below; is useful as expectorant late in disease when lung tissue breaks down (Da C.). *Digitalis*, of doubtful value; may be useful for high temperature, ischæmia, and low tension of vessels (B.); as case goes on and circulation is to be further controlled, digitalis is indicated (Da C.); the best agent to slow the heart in infantile pneumonia, with Belladonna as an adjuvant (Brown). *Antipyrine*, to reduce pyrexia; is decidedly more serviceable in pneumonia than quinine (Wa.); gr. xv several times a day, or 3 hourly doses each of gr. xxx, then stopping until temperature rises again (R.). *Stimulants*, in asthenic cases, those of malignant type, and those occurring in aged people (Wa.). *Ammonia*, the aromatic spirit as substitute for Ammon. Carbonate, in doses of ʒss in simple elixir (Da C.). *Turpentine*, as stimulant at crisis (B.). *Serpentaria*, with carbonate of ammonium in low types, as a stimulant about the crisis. *Quinine* or *Salicylic Acid*, to reduce temperature (R.); Quinine as a tonic in cases which are asthenic from the first (P.); in conjunction with Aconite and Veratrum, gr. viij–xij daily at start, is beneficial (Da C.). *Blisters*, useful at very beginning only or at crisis of disease; harmful in inflammatory stage (B.); to lessen the pain, but should be used in moderation (R.). *Wet-pack*, hot, tightly pinned to limit motion of chest-walls (B.). *Poultices*, encircling whole chest in children (R.). *Diet*, farinaceous, mucilaginous drink, and rest in a warm room (R.).

Prescriptions.

℞.	Tinct. Verat. Viridis, . . .	♏xl.
	Spt. Ætheris Nitrosi, . . .	ʒvj.
	Liq. Potassii Citratis, . . .	℥ivss.
	Syr. Zingiberis. . q. s. *ad*	℥vj.

M. Sig.—A tablesp. every 3 hours, in the early stage. (*Da Costa.*)

℞.	Sodii Iodidi, ...	ʒjss.
	Morphinæ Sulph., ...	gr. ss.
	Elixir Simplicis, ...	℥ij.

M. Sig.—Teasp. thrice daily, with blisters over the apex, in catarrhal pneumonia. (*Da Costa*)

℞.	Potassii Iodidi, ...	ʒj.
	Ammonii Muriatis, ...	ʒjss.
	Mist. Glycyrr. Comp., . . .	℥vj.

M. Sig.—Tablesp. 4 times daily, to promote absorption, together with blisters to the chest. (*Univ. Penna.*)

℞.	Ammonii Carbonat, . . .	gr. xl.
	Infusi Serpentariæ, . . .	℥iv.

M. Sig.—A teasp. every 3 hours, as a stimulant about the crisis. (B.)

℞.	Ammonii Iodidi, ...	gr. xl.
	Spt. Ammon. Aromat., . .	℥ij.
	Elixir. Simplicis, ...	℥j.
	Aquæ, ... q. s. *ad*	℥viij.

M. Sig.—One-eighth thrice daily, in syphilitic lobar pneumonia, together with the following pill. (*Da Costa.*)

℞.	Digitalis, ...	gr. vj.
	Quininæ Sulph., ...	gr. xij.
	Extr. Opii, ...	gr. iij.
	Extr. Ipecac, ...	gr. iij.

M. ft. pil. no. xij. Sig.—One pill thrice daily, with the preceding mixture. (*Da Costa.*)

Polypus.

Sanguinaria, has been employed as snuff for nasal polypi (P.); with doubtful benefit (Wa.). *Tannin*, finely powdered, as snuff blown daily into nostrils through a quill, is especially adapted to the soft and gelatinous varieties; while it has apparently no effect on the healthy mucous membrane, it causes the complete withering of the polypus (Wa.). *Zinc Chloride*, has been injected interstitially with success in a case of naso-pharyngeal polypus (Barthélemy). *Iron*, a solution of the perchloride is advised as an interstitial application (Auger). *Acetic Acid*, glacial, injected into the body of the tumor, will cause it to shrink up and to drop off in a few days. *Alum*, in powder, applied to point of origin to prevent recurrence (D.). *Surgical.* A nasal polypus should be seized with polypus forceps and twisted off at the neck; it may be removed through the mouth or the nostril. In a few cases the nostril must be dilated with a speculum, or the ala slit to give access to root of tumor (D.).

Poultices.

Poultices and Fomentations are simply local baths utilizing warmth and moisture, relaxing the tissues and relieving pain. If applied early they will check inflammation, or assist the evacuation of pus when suppuration has set in. Poultices should be applied thick (thin in peritonitis), as hot as possible, covered with cottonwool, and frequently changed; large at onset, very small after maturation. Belladonna and Glycerin, partes æquales, smeared over tissues under a poultice, aid the latter greatly, also Tinctura Opii, especially where skin is broken. Linseed-meal or Oatmeal, Starch, Bread, Bran, are best in the order mentioned; add meal to boiling water, stir and spread quickly on warm linen. Charcoal under the poultice, when foul sores are being treated.

An excellent method of preparing poultices is to make a lot of bags of various sizes, and of the fabric known as "Swiss," filling each one half-full of the linseed-meal or other agent employed before sewing up its open end. When wanted for use one of these bags is submerged in boiling water for a few minutes, and on taking it out the meal is found to have swelled so as to fill the bag, which should then be squeezed enough to rid it of the superfluous water, laid on the part and covered with oiled silk and a bandage.

Fomentations. Flannel should be wrung very dry out of boiling water, and covered with oiled silk. Spongio-piline, a fabric composed of sponge and wool, coated with india-rubber, is an excellent vehicle for the application of warmth and moisture. The inner surface is moistened with hot water; and its utility may be increased by sprinkling the moistened surface with charcoal, yeast; or saturating it with any desired lotion or liniment.

Pregnancy, Disorders of.

Mercury, a few grains of blue pill to correct clay-colored stools (L.). *Iodine*, the tincture internally for cardialgia (Wa.). *Aloes*, have cured piles in pregnancy, by removing constipation; cautiously (P.). *Alum*, *Tannin* or *Catechu*, in medicated pessaries for vaginal leucorrhœa (L.). *Castor Oil*, an excellent laxative (P.); to clear out the bowels in diarrhœa (L.). *Cocculus Indicus*, when intestines much distended with flatus, and frequent desire to urinate from flatulent pressure on bladder (P.). *Bismuth*, *Calumba* and *Antispasmodics*, with minute doses of Opium, for gastrodynia and pyrosis (L.). *Potassium Bromide*, with chloroform, as an antispasmodic in dyspnœa (L.). *Sumbul*, is invaluable in restlessness;—♏ xxx–xl of tincture with a little chloric ether, giving quiet nights for a long time (P.). *Galla*, unguentum gallæ cum opio, the best local application to hemorrhoids, also fomentations with sponges wrung out in very hot water, to relieve pain (L.). *Digitalis*, in infusion, very beneficial in albuminuria (L.). *Potassium Acetate*, with Basham's mixture (Liq. Ammonii Acetatis), when albuminuria with anæmia. *Calcium Phosphate*, believed to exert an influence on the fœtus if administered during pregnancy, so that mothers who have borne only rachitic or scrofulous children will bear healthy ones (W.). *Berberine*, found very useful in the periodical neuralgiæ of pregnancy, even in cases in which quinine had previously failed (Maclagan). *Camphor*, liniment for lumbar pains (Wa.). *Senna*, the confection proves a mild and efficient purgative in the constipation of pregnancy (Wa.). *Milk-diet*, for albuminuria of pregnancy the best remedy, if strictly carried out (Parvin). *Injections*, must be used carefully, even tepid water often induces uterine contractions (L.). [Compare VOMITING OF PREGNANCY, PTYALISM, ALBUMINURIA, NEPHRITIS, NERVOUSNESS.]

Prolapsus Ani.

Nux Vomica. Strychnine, especially when in children, with constipation; in the latter event add nux vomica to a purgative, as tincture of rhubarb (R., P.), or strychnine hypodermically, gr. $\frac{1}{12}$ for an adult every 48 hours, ¾ inch from anus and parallel to rectum, into the cellular tissue; generally requires 4 to 8 injections (Weber). *Piper*, the confectio piperis in doses of gr. lx–gr. cxx, persevered in for 3 or 4 months, in chronic, weak subjects (Wa.). *Sulphur*, has a beneficial effect in addition to its laxative value (R.). *Alum*, in solution, gr. vj to the ℥ (R). *Ice*, locally, when parts inflamed (R.). *Ergot*, the fluid extract injected into the perineum, is followed by immediate relief (Vidal). *Ferrum Sulphate*, ʒj to ℥viij aquæ, of which one-third by enema twice daily. *Podophyllin*, in small doses for rectal prolapse in children (P.). *Tannin*, injection to restrain the prolapsus (R.). *Hydrastis*, by enema, or as a lotion (P.).

Prolapsus Uteri.

Cimicifuga, to prevent miscarriage in prolapsus uteri (R.); has a remarkable effect upon the uterus (P.). *Astringents*, decoctum quercus, decoctum gallæ, (Wa.). Pomegranate bark (P.). *Tannin*, as catechu, kino, red gum, rhatany. *Alum*, a solution gr. vj ad ℥j (R.); lb. j ad Cj aquæ, as hip-bath, also should be passed well up vagina (Wa.). *Ice*, locally when parts inflamed (R.); applied to the spine (Wa.). *Pessaries*, in any form, are of but temporary benefit, and in the end positively detrimental (E.); but many cases cannot be treated without mechanical support of some kind.

Prostate, Hypertrophied.

Alkalies, for the cystic irritation with acid urine. Great benefit from liquor potassæ, citrates and acetates of potassium (B.). *Triticum Repens*, benefit follows its use in the prostatic enlargement of old men (Sir H. Thompson). *Ammonium Benzoate*, for the cystitis, urine alkaline (B.). *Ammonium Chloride*, is occasionally useful, gr. xv–xxx, 3 or 4 times daily (Wa.). *Iodine Injections*, through rectal walls (B.); a weak ointment applied by rectum (Wa.). *Iodine*, has been tried in all forms, but is of no value (Thompson). *Iodoform*, as suppository in rectum, has proven of great value (B.). *Colchicum*, in persons of a gouty diathesis (Wa.). Medicine is not likely to have any control over this condition, which is a simple hypertrophy. [Compare CYSTITIS.]

Prostatitis.

Cantharides, gtt. j of tincture (5 may be required) 3 or 4 times a day (R.). *Triticum Repens*, is found to be of benefit (Sir H. Thompson). *Urino-Genitals*, especially turpentine, cubeb, juniper, cantharis (B.); cubeb, in doses of gr. xx daily, is found of much benefit (Wa.); buchu relieves (P.). *Silver Nitrate*, a solution (gr. v–x ad ℥j), applied to the prostatic urethra in chronic prostatitis, may be useful (Wa.). *Blisters*, in chronic prostatitis, a small blister on each side of the raphé of the perineum, kept open 4 to 6 weeks, has given the best results (Wa.). *Tonic* medicines and regimen should be prescribed (Wa.). *Hot Injections*, to relieve pain (R.). [Compare PROSTATORRHŒA.]

Prostatorrhœa.

Iron, the tincture of the chloride, when there is much debility (B.); chalybeate tonics with quinine and strychnine (Gross). *Atropine*, indicated in all cases, with potassium bromide (Gross). *Potassium Bromide*, when irritability and excitement (B.): indicated in all cases (Gross). *Lead*, injections of Goulard's extract, ʒj to ℥x of water, night and morning, for 10 minutes at a time (Gross). *Ergot*, when relaxation exists (B.). *Bougie*, methodically introduced, is one of the best local measures (Gross). *Hydrastis*, locally applied, a useful medicine (B.). [Compare PROSTATITIS.]

Prurigo.

Alkaline Baths, followed by a carbolized ointment, and carbolic acid internally, are of value in the papular eruption known as prurigo (Bulkley). *Sulphides*, Potassa Sulphurata, with tar and benzoated lard, as ointment in genuine prurigo (R.). *Arsenic*, in doses of ♏v of liquor arsenicalis thrice daily and gradually increased, has exercised a more or less powerful influence (Wa.); has only a moderate effect (Bulkley). *Belladonna*, controls cases which have resisted ordinary treatment (B.). *Carbolic Acid*, locally and internally, is especially serviceable in prurigo senilis (B.). *Mercury*, the bichloride, gr. xx with Ammonii Chloridi, gr. xxx, in Oj of pure water, as lotion in prurigo contagiosa, "army-itch;" nothing equal to it (White). *Borax*, a saturated solution in rose-water locally (R.); gr. v–x to ℥j of hot water for pruriginous eruptions on mucous membrane of vulva and vagina (R.). *Galvanism*, when prurigo is referable to alterations in the cutaneous nerves (B.). *Tonics*, are required, nerve-tonics as well as general ones, Cod-liver Oil, Quinine, Strychnine and Phosphorus (E. Wilson). *Quinine*, in large doses, gr. v–x, will control violent exacerbations (Wilson). *Baths*, the Turkish, frequently repeated, with inunction of the skin, may be regarded as curative in most cases (Wilson). [Compare PRURITUS.]

Pruritus.

Alkaline Baths, locally, followed by the application of Carbolic Acid Ointment, gives great comfort in all forms of pruritus (Bulkley). Sodium or Potassium Carbonate preferred (Tr.); in solution locally, ʒiij ad ℥iv (B.). *Carbolic Acid*, as lotion with glycerin, to the itching surface, gives great relief (Bulkley) internally and locally in pruritus senilis (B.); a one per cent. solution as lotion in pruritus ani (R.). *Mercury*, strong solutions of the Bichloride, black wash yellow wash or mercurial ointment, in itching of skin affections (R.); *Yellow Wash* is one of the most efficient applications for pruritus ani. Solutions of the Bichloride are very useful applications in pruritus vulvæ et ani (Tr.); for pruritus vulvæ a lotion of the Bichloride 1 to 2500 parts of water, with alum and starch, is recommended (B.). Calomel ʒj to ℥j of lard, as ointment, is the best application, except in the pruritus of urticaria; very useful in pruritus ani, less so in pruritus pudendi (R.). The Oleate, a 5 per cent. solution in oleic acid with one-eighth part of ether, applied by a camel's hair brush, in pruritus ani et pudendi (Marshall). *Alum*, a strong solution is very useful for pruritus vulvæ (Tr.). *Hydrocyanic Acid*, diluted as lotion, often very serviceable; may be prescribed in solution with borax (B.); or laurel-water as lotion, especially in pruritus senilis (P.). Potassium Cyanide, ʒj to Oj of water, as lotion for pruritus of various kinds when the skin is unbroken (R.); as ointment or solution, if strong enough, relieves greatly, but must be used with caution (B.); or ♏xxx of the dilute acid of the Br. Pharmacopœia in ℥j of water or glycerin, may be used instead (R.). *Silver Nitrate*, a solution, gr. xx ad ℥j, painted over the affected parts in pruritus vulvæ, is very effective (B.). *Tobacco*, is an effective but dangerous application (B.). *Iodoform*, as ointment, ʒj ad ℥j adipis (R.). *Iodine*, for itching of the nose or inner canthus, sneezing, etc., iodine inhalations have a marked effect (R.). *Arsenic*, for itching of the nose, accompanying asthmatic symptoms (R.). *Benzoin*, the compound tincture painted on the skin, for the itching of eczema, urticaria, etc. (R.). Boracic Acid makes an excellent lotion in pruritus pudendi, a teasp. to the pint of hot water (R.). *Borax*, gr. v–x ad ℥j hot water (R.). See PRURIGO. *Balsam of Peru*, is a very good application in pruritus ani, scabies, and many other forms of itching (Auerbach). *Camphor*, with Chloral, rubbed together, makes a liquid which, added to vaseline, makes an ointment which is powerfully antipruritic (Bulkley); added to dusting powders, allays heat and itching of eczema and intertrigo (R.). *Chloroform*, as ointment to allay itching of skin diseases (R.). *Gelsemium*, ♏xv of the tincture every half-hour, up to ʒj, for itching which is out of proportion to the cutaneous lesion (Pelcher). *Lead Lotions*, to ease the itching of urticaria, pruritus pudendi, etc., especially when the mucous membrane is red and excoriated (R.). *Salicylic Acid*, as ointment, in pruritus ani et vulvæ (R.). *Sodium Salicylate*, in 15-grain doses by mouth every four hours, will greatly relieve pruritus vulvæ, when due to diabetes (Goodell). *Tar*, as ointment, is strongly recommended (Tr.); for general pruritus, if no cause can be found, the two best remedies are Tar and Sulphur, as lotion or bath (Sparks); ointments containing Tar give relief in many instances (Bulkley). *Sulphur*, may be employed as a bath, Potassa Sulphurata, ℥ij ad Cxv of hot water (Sparks); or the alkaline sulphites locally (Wa.); the iodine of sulphur externally and internally, in pruritus senilis (Wa.). *Chlorine*, the liquor Sodæ Chloratæ, diluted, a useful application in pruritus ani (Wa.). *Cocaine*, in 5 per cent. solution or oleate, is by far the most efficient of all antipruritics; relieves the itching of scrotal eczema, pruritus ani et pudendi, and especially in lesions of the epidermis where the oleate or solution can penetrate at once to the true skin. [Compare ECZEMA, ERYTHEMA, LICE, PEDICULI, PRURIGO, SCABIES, URTICARIA.]

Prescriptions.

℞. Ac. Carbolici, ... ʒij.
Glycerini, ... ℥j.
Aquæ Rosæ . . . q. s. *ad* ℥viij.
M. Sig.—Lotion for pruritus.

℞. Ac. Hydrocyanici Dil., . . ʒss–j.
Infusi Altheæ, ... ℥v–viij.
M. Sig.—Lotion. (*Fox.*)

℞. Potassii Cyanidi, ... gr. xv.
Aquæ Laurocerasi, . . . ℥viij.
M. Sig.—Lotion. (*Anderson.*)

℞. Liq. Carbonis Detergentis, . ℥ss.
Glycerini, ... ℥j.
Aquæ, ... *ad* ℥x.
M. Sig.—Lotion. (*Sparks.*)

℞. Acidi Benzoici, ... gr. cx.
Ol. Caryophylli, ... gtt. xl.
Alcoholis, ... ʒijss.
Solve et adde—
Cerati Simplicis, ... ℥viij.
Balsami Peruviani, . . . ʒj.
M. ft. unguentum. Especially good for scabies, but may be used for any pruritus.

℞. Ac. Hydrocyan. Dil., . . ʒij.
Sodii Boratis, ... ʒj.
Aquæ Rosæ, ... ℥viij.
M. Sig.—Lotion. (*Fox.*)

℞. Potassii Cyanidi, ... gr. vj.
Pulv. Cocci, ... gr. j.
Ung. Aquæ Rosæ, . . . ℥j.
M. Sig.—Ointment. (*Anderson.*)

℞. Cretæ Præparatæ, ... ℥j.
Coal Tar, ... ʒj–ij.
Ol. Lini, ... ℥ijss.
M. ft. unguent.

℞. Gummi Camphoræ,
Chloralis Hydratis, . . aa ʒj–ij.
Rub together until liquefied, then add, slowly with friction,—
Unguenti Aquæ Rosæ, . . ℥j.
Sig.—Ointment for itching. (*Bulkley.*)

℞. Hydrarg. Chlor. Corr., . . gr. j.
Pulv. Aluminis, ... gr. xx.
Amyli, ... ʒjss.
Aquæ, ... ℥vj.
M. Sig.—Apply locally. (*Goodell.*)

Psoriasis.

Arsenic, at first apparently aggravates, but soon heals the disease (R., B.); in lepra must be persistently used for a long time (B.); exercises a powerful influence (Wa); maximum dose ♏v liquor arsenicalis ter die, never on empty stomach (R.). *Mercury*, in patches of obstinate psoriasis, especially of hands even when not syphilitic. Calomel and mercuric nitrate ointment may be mixed, and tar ointment added (R.). *Lappa Major*, a tincture of the seeds in whiskey, used by tablespoonful doses, curative of psoriasis of long standing (Reiter). *Carbolic Acid*, 1 to 4 of lard, as ointment (Wa.). *Mezereon*, a useful adjunct (Wa.). *Sulphur*, internally (R.); a solution of potassa sulphurata in water, is excellent in chronic psoriasis (B.); not in acute (R.). *Sulphur Iodide*, externally and internally, in doses of gr. j–vj used with great advantage (Wa.). *Silver Nitrate*, in psoriasis of tongue and buccal mucous membrane occasionally; if syphilitic, mercurials best (R.). *Chrysarobin*, has the most decided effect on psoriasis, ʒss–ij ad ℥j of ung. aquæ rosæ; often irritates, and should be employed at first with caution (Bulkley). *Nitric* and *Nitro-Hydrochloric Acids*, when symptomatic of imperfect digestion and assimilation (B.). *Phosphorus*, as substitute for arsenic (B.). *Coptis*, has reputation in New England (B.). *Copper Sulphate*, applied solid to spots (R.). *Lead*, the ointment of the iodide (B.). *Tar*, painted on, in obstinate cases (R.). *Oils*, Cod-liver Oil internally and locally, is the sheet-anchor, especially when of strumous origin (B.); oils and fats to lubricate skin, with warm baths (R.). *Diet and Hygiene*, nourishing diet, frequent small quantities of raw vegetables. Cod-liver oil for growing persons, especially when stale fish the cause. Rest and change for overworked subjects. Daily baths and cold sponging. Free, open-air exercise is also most useful. Warm or tepid soft-water baths at night, with use of pure soap.

Pterygium.

Silver Nitrate, locally, especially when pterygium with catarrhal conjunctivitis (Wa.). *Treatment* unavailing. Benefit seldom derived from any operation (C.). *Arlt's Operation*, the most satisfactory; cut away as little tissue as possible, dissect cleanly, close with suture (Green).

Ptosis.

Veratrine, gr. x in ʒij of sulphuric ether and ℥j of alcohol, brushed over the eyelids, brows and temples every morning, till a slight burning sensation is produced; conjoined with the use of electricity (W.). *Ergot*, aqueous infusion as collyrium (Wa.). *Electricity*, the constant current may often relieve recent cases (C.). *Operation* for shortening the lid, by removing an elliptical piece of skin and subjacent muscle (C.); is not advisable unless the ptosis is nearly or quite complete, and of great inconvenience.

Ptyalism.

Iodine, as gargle, ʒij of tinct. ad ℥viij aquæ (R.); is worthy of trial (Wa.). *Acids*, as astringents, small medicinal doses (R.). *Sulphuric*, int. and as a gargle with decoctum cinchonæ, of great benefit in mercurial ptyalism (Wa.). *Potassium Chlorate*, in simple or mercurial ptyalism (R.); in the latter form ʒj ad ℥vj aquæ as mouth-wash, and internally in teasp. doses, 4 or 5 times daily (St.). *Belladonna*, very effective in mercurial ptyalism, and that of pregnancy. Gtt. v–x, or Atropine gr. $\frac{1}{120}$ to $\frac{1}{110}$ every 4 to 6 hours (B.). Atropine hypodermically (R.); should be useful (W.). *Tannic Acid*, in mercurial ptyalism is an excellent gargle, ʒj of tannin to ℥ij of mel rosæ, and ℥vj of water (B.). *Alcohol*, diluted, as a gargle (R.). *Potassium Iodide*, sometimes beneficial in mercurial ptyalism, but often aggravates it (R.).

Prescriptions.

℞. Tinct. Myrrhæ, ... ʒj.
Aquæ, ... ℥vj.
M. Sig.—Mouth-wash.

℞. Sodii Boratis, ... ʒij.
Pulv. Myrrhæ, ... ʒj.
Aquæ, ... ℥vj.
M. Sig.—Mouth-wash or gargle.

Puerperal Convulsions.

Aconite, one of the best agents (P.); gtt. j–ij of tinct. every 10 or 15 minutes for the first hour, then at longer intervals (B.). *Belladonna*, the tincture internally with atropine hypoder., of verified utility (P.). *Veratrum Viride*, in ʒss doses of fluid extract every 15 minutes, to nausea, invaluable (R.); the fl. extract, in doses of ♏viij–x hypodermically, may be repeated in half-hour with Morphine, or ♏x by enema, promptly efficient in the worst cases (Elmer); a very bad case cured by 20-minim doses every hour for 5 days (Dunn); the worst case seen in my 30 years' experience, after 14 seizures was promptly cured by a hypodermic injection of ♏iv of Norwood's tincture in a little water (Etheridge). *Pilocarpine Nitrate*, gr. $\frac{1}{5}$ hypodermically every 2 hours, very successfully used in several cases (Finniss). *Potassium Bitartrate*, administered for a month prior to confinement, in quantity sufficient to bring about free action of kidneys and bowels, will certainly prevent puerperal convulsions. (Anderson). *Opium* is apt to induce eclampsia, unless its use be preceded by free purgation or venesection (Idem); as morphine hypodermically; the most important agent for cure of uræmic convulsions (B.); with the lancet, sometimes required (P.). *Anæsthetics*, especially chloroform (R.); utility unquestionable, when not due to cerebral hemorrhage (B.). *Chloral*, full doses (gr. xx–xxx) every 2 hours, may arrest (B.); a remedy of the greatest value, a full dose, gr. xx–xxx, before proceeding to one of the bromides (Playfair, Barnes, etc.). *Amyl Nitrite*, by inhalation (B.); may cause alarming hemorrhage (W.). *Ice*, to the head (R.); and mustard poultices at same time to the feet (Wa.). *Venesection*, by far the most efficient measure (Wallace); when great cerebral congestion and vascular tension, shown by a livid face, a full and bounding pulse, and strong pulsation in the carotids (Playfair).

Puerperal Disorders.

Cimicifuga, in puerperal hypochondriasis, and depression (Wa., P.). *Opium*, either alone or with alteratives, highly serviceable in puerperal intestinal irritation; a few drops of tincture effectually arrests the diarrhœa (Wa.); when shock and marked exhaustion, a moderate dose is of benefit (L.). *Castor Oil*, undoubtedly the best laxative (L.); purgatives generally are not required. Castor oil the very worst (Fordyce Barker); action uncertain (Parry). *Rhubarb*, or enemas, best means of stimulating bowels after fourth day (L.); gr. xx–xxx in some aromatic water a good aperient (Wa.). *Aliment*, in puerperal state should be easy of digestion and sustaining (L.). *Catheter* necessary often for several days when bladder paralyzed, if warm water lavements fail to excite (L.). *Water*, tepid sponging of external parts, vaginal washings daily with warm water, with $\frac{1}{100}$ part carbolic acid (L.). [See AFTER-PAINS, HEMORRHAGE, LABOR, LACTATION, MASTITIS, NIPPLES, PHLEGMASIA ALBA DOLENS, etc.]

Puerperal Fever.

Aconite, drop doses every one or two hours steadily, with an occasional dose of castor oil, and repeated hot poultices or laudanum fomentations, the most successful treatment, even in the worst cases, but is useless if not promptly efficient (P.). *Veratrum Viride*, is used with great benefit in most cases (F. Barker). *Opium*, for wakefulness and delirium (B.); a very valuable remedy, tending to allay pain, and reduce excitement of the nervous and vascular systems (Wa.). *Alkaline Sulphites*, especially valuable in early stages, internally and locally; gr. xx–xxx of magnesium or calcium sulphite every 2 or 3 hours, with injections every day (Wa.). *Stramonium*, when cerebral excitement (P.). *Potass. Permang.*, gr. ¼–j ter die, has been given with benefit (B.). *Alcohol*, freely used, until all evidence of sepsis subsided, caused recovery in one of the most desperate cases of puerperal septicæmia, of three weeks' standing, with temp. falling to 95° and rising to 107° (Hills). *Calumba*, preferable to cinchona (P.). *Quinine*, only large doses are useful: gr. v–xx every 4 hours (B.); reduces temperature (P.). *Turpentine*, when depression of vaso-motor nervous system, cardiac weakness, and tympanitic distention of abdomen (P., R.). *Resorcin*, is much used in Vienna by Braun; gr. xl repeated p. r. n. *Antiseptic Injections* into uterus, opposed very strenuously by many of our best men. See N. Y. Med. Rec., 1884, p. 14. For antiseptic treatment by Hydrarg. Bichlor., see Dr. Garrigues in N. Y. Med. Rec. of December 29, 1883, and N. Y. Med. Jour. of March 1, 1884, and the discussion in the N. Y. Academy of Medicine, reported in the N. Y. Med. Record of January 5 and February 16, 1884, et seq. *Water*, hot fomentations frequently to parts, a valuable preventive. *Rest*, and quiet but attentive nursing; frequent liquid nourishment. *Warburg's Tincture*, is more efficient than the largest doses of quinine in cases of puerperal malarial fever, ℥ss every four hours until fever abates, then in diminishing doses to ʒj–ij, until convalescence is established (*Fordyce Barker*). [Compare PUERPERAL PERITONITIS.]

Puerperal Mania and Melancholia.

Stramonium, will allay cerebral excitement, and soothe nervous system; when delirium wild and furious, but intermittent; tendency to suicide or to destroy the child. ♏x–xx of tinct. every 3–4 hours (P.). *Hyoscyamus*, in milder cases; nervous system greatly excited (P.). *Aconite*, in puerperal mania, with high fever, restlessness; speedy and marked success if given soon after chill (P.). *Cimicifuga*, has cured (B.); its effects are truly remarkable in mania, and hypochondriasis of puerperal state (P.). *Chloral*, often alleviates symptoms (B.); to produce sleep (Wa.). *Potassium Bromide*, in sthenic cases (R.); its effects are very variable (Wa.). *Anæsthetics*, ether inhaled in violent paroxysms of mania (B.). *Tartar Emetic*, in frequently repeated doses (Wa.). *Quinine*, when much weakness; skin cold and sweating (B.). *Chalybeates*, tinct. ferri chlor. (♏v–xx) in anæmic form (B.). *Opium*, cautiously (B.); gives the best results in such doses as may be necessary to allay irritation and procure sleep (Wa.). *Poultices*, hot fomentations, enemas, or gentle laxatives; nutritious and stimulating diet. Lochia should be watched (P.). *Weaning*, imperative in melancholia; not so in acute mania.

Puerperal Peritonitis.

Aconite, has cured cases of the usual type (P.) [See PUERPERAL FEVER. *Cimicifuga*, in rheumatic form especially, has remarkable effects (P.). *Opium*, its curative power in this, one of the best established facts in therapeutics (B.); is good, but aconite often better (P.); especially valuable in adynamic cases (Wa.); the drug of all others to be relied on (Godson). *Turpentine*, as stimulant, ♏x frequently repeated; better than alcohol (B.); enemas, also hot turpentine epithems, may be used with advantage (Wa.). *Quinine*, in considerable doses, with or without opium (B.); gr. x–xx twice daily as an antipyretic (Wa.). *Antimony*, as Tartar Emetic, gr. $\frac{1}{10}$ to $\frac{1}{8}$ every hour to shorten attack and render it more mild (R.) *Cathartics*, advised by many, prohibited by as many; evidence is in favor of mild aperients combined with Dover's powder or Hyoscyamus (Wa.). *Poultices*, hot, of very great value (B.). *Water*, ice in mouth or swallowed, hot fomentations to abdomen. In some cases cold compresses best. [Compare PUERPERAL FEVER.]

Pulse.

Aconite, for a quick, resisting pulse (P.); a moderate dose, while it makes the pulse less frequent, renders it fuller, stronger and less compressible (R.). *Veratrum Viride*, reduces febrile heat with abnormal rapidity of pulse (P.). *Veratrine*, pulse at first quick and strong, then slowed; afterwards quick, weak and irregular (R.). Compare VASCULAR STIMULANTS, ETC., *ante*, page 34.

Purpura.

Sulphuric Acid, often acts happily (B.). *Ergot*, has been strongly urged (R.); is most useful in removing purpura (P.); many cases are recorded as cured by hypodermic injections of Ergotin (Wa.). *Turpentine*, has been used (R.); with invariable benefit (Wa.). [See HEMATEMESIS.] *Nux Vomica*, no prescription more generally useful than the Syrup of Iron, Quinine, and Strychnine (B.). *Iron*, when due to anæmia; the tincture of the chloride (B.); is preeminently the curative remedy for purpura hemorrhagica, arresting the hemorrhagic tendency in 24 to 48 hours (Pize). *Vinegar*, and water, is an excellent application by sponging over the body (E. Wilson). *Quinine*, or Huxham's tincture of bark, are much used (H.). *Potassium Nitrate*, gr. x thrice daily in purpura simplex, used successfully (Wa.). *Styptics*, as the ammonio-ferric alum, tinct. of ferric chloride (Tr.); tannic and gallic acids, used in some cases (H.). *Alum*, and brandy, or whiskey and water at such temperature as is not chilling, applied by sponging the body, is the best local measure (H.). Wines are generally indicated (B.). [Compare HEMORRHAGE, SCURVY.]

Pustule, Malignant.

Nitric Acid, strong, applied steadily (after thorough cleansing and drying) to destroy the diseased mass (D.). *Bromine*, to saturate the surface (D.). *Carbolic Acid*, undiluted, as caustic, or with oil, the favorite (D.); the most preferable caustic (Greenfield). *Quinine* and Carbolic Acid, internally, are indicated in all forms, also stimulants, as Ammonia, Ether, and Alcohol (Greenfield). *Eschar* should be promptly destroyed, to avoid contagion (R.). *Excision* and cauterization demanded, when from direct inoculation; the two most successful remedies (Greenfield).

Pyæmia and Septicæmia.

Quinine, large dôses only (gr. xv–xx) are useful (B.); supposed to diminish the temperature (R.); to cinchonism, in childhood the best remedy (Wa.); is probably the most useful medicine, given in full and frequently repeated doses (Haward). *Salicin*, to reduce the temperature in septicæmia and to relieve the cerebral symptoms (R.). *Salicylic Acid*, has decided value (B.). *Potassium Permanganate*, given with advantage, gr. ¼–gr. j thrice daily in distilled water (B.). *Boracic Acid*, a saturated solution to wounds, ulcers, etc. Also Chlorine, as disinfectant (B.). *Oleum Caryophylli*, locally. Also olei gaultheriæ, thymi, etc. (B.); as antiseptics. *Water*, cold, as dressing. Hot better, 95°–100° F. Hamilton's immersion plan for wounds (B.). Stumps to be immersed in a warm bath, to avert pyæmia (R.). *Sulphites*, may do some good in chronic cases, but the use of sulphurous acid has not given the results in man which Polli obtained from its use on animals (Haward). *Turpentine*, is a better stimulant than alcohol (B.). *Ice*, dissolved in the mouth (Wa.). *Aliment*. Plentiful nourishment, with wine and good ventilation, are not to be neglected (Wa.). Malt liquors are justly esteemed (B.). Stimulants necessary; brandy the best (Wa.). *Abscesses*, must be opened early, especially when in joints.

Pyrosis and Cardialgia.

Capsicum, in atonic dyspepsia, with heartburn and diarrhœa (P.). *Nux Vomica*, of the highest possible value in atonic dyspepsia with heartburn, hiccough, regurgitation, etc. An excellent combination is ♏v–x of the tincture with ♏xv of dilute nitric acid for one dose (P.). *Pulsatilla*, a good medicine in heartburn of dyspepsia in phlegmatic subjects (P.). *Podophyllin*, gr. $\frac{1}{10}$ night and morning in obstinate heartburn, with liver derangement (P.). *Almonds*, six or eight blanched, said to relieve heartburn (P.). *Diet*, lemon-juice, aërated bread, plain biscuit, etc.; but avoid new bread, much vegetable food, and pastry. [Compare ACIDITY, DYSPEPSIA.]

Rachitis.

Lime, as lime-water, or the carbonate, or the syrupus calcii lacto-phosphatis (B.); in small doses (R.); the phosphate may be advantageously combined with cod-liver oil (Wa.). *Iron*, the syrup of the iodide preferred; calcium and ferric phosphates excellent in combination (B.); must be continued a long time

(R.). *Nitro-hydrochloric Acid*, as baths, gives excellent results (Wa.). *Quinine*, often very valuable (P.). *Aliment*, food rich in phosphate of lime and other phosphatic salts; oatmeal, Graham bread, etc. (B.). Cod-liver oil, the best constructive agent (B.). A full animal diet (Wa.). Cold sponging (R.).

Rectum, Diseases of.

Podophyllum, in doses of gr. $\frac{1}{20}$ to $\frac{1}{10}$ night and morning, for a child, may relieve prolapsus of the rectum (P.). *Belladonna*, the extract locally in fissure (R.); and irritable ulcers (P.); internally and locally to remove ulcers, also excellent in burning pain following defecation, or with mercurial ointment in equal parts, for fissures and ulcers (P.). *Phosphorus*, in chronic inflammation of the rectum, has been highly recommended (R.). *Cocaine*, gr. xl to ℥j of Glycerite of Starch, applied by Seeley's Pile-pipe, very efficient in controlling spasm of the rectum. *Potassium Bromide*, in 5 parts of glycerin, locally, fissures and painful growths (R.). *Iodoform*, as suppository in painful diseases, relieves greatly (R.). *Pepper*, the confection, as gentle stimulant in fistula, ulcers, hemorrhoids (P.). *Castor Oil*, in fissure and hemorrhoids, is commonly used as purgative (R., P.). *Sulphur*, with confectio sennæ, in irritable rectum, is very soothing (Wa.). *Stramonium*, ointment from fresh leaves to alleviate pain (P.). *Conium*, the extract in doses of gr. x to allay pain and irritability in cancer (Wa.). *Purgatives*, best for proctalgia (D.). *Surgical*, in ulcer or fissure, an incision through mucous membrane, and in severe cases to divide part of the sphincter. A flake of cotton should be laid in the wound, so that it may heal by granulation (D.). [See ANUS, DIARRHŒA, DYSENTERY, RECTUM ULCERATION OF, HEMORRHAGE INTESTINAL, HEMORRHOIDS, PROLAPSUS.]

Rectum, Ulceration of.

Mercury, the red oxide, ʒj to the ℥ of unguentum, as ointment in flat ulcers of rectum existing just within the anus (Coulson). *Belladonna*, locally the extract for rectal ulcers, is very efficient (P.). *Carbonic Acid*, the gas, per anum, is strongly advised (Wa.). *Chloroform*, as ointment, in irritable ulcer of rectum (Curling). *Iodoform*, in suppository, extremely useful in painful ulceration (R.); used in many cases with very satisfactory results, but in some instances poisoning occurs; hence it should be used with caution (Wa.). *Phosphorus*, as an internal remedy, is highly recommended in chronic inflammation of the rectum (R.). *Copper Sulphate*, with opium, may often be used internally with advantage, and a weak solution of the same, or of Silver Nitrate, locally (Curling); the writer had a case which resisted treatment for 3 years, and in which a cure was effected by a persevering use of a pill of Cuprum Sulphate, Extract of Opium, and Quinine Sulphate. *Silver Nitrate*, gr. ¼–j combined in pill with Opium, gr. ss; and a solution, gr. x–xx to the pint, by enema (B.).

Prescriptions.

℞. Cupri Sulphat.,
Morphinæ Sulphat., . āā . gr. ij.
Quininæ Sulphat., ... gr. xxiv.
M. ft. pil. no. xxiv. Sig.—One pill thrice daily. (*Potter.*)

℞. Chloroformi, ... ʒj–ij.
Zinci Oxidi, ... ʒss.
Olei Olivæ, ... ℥j.
Cerati Cetacei, ... ʒiv.
M. ft. unguentum. (*Curling.*)

Relapsing Fever.

Cathartic, mild at beginning (H.); if jaundice or other hepatic derangement, a calomel purgative, cautiously, lest irritation (Wa.). *Potassium Citrate*, as cooling diaphoretic. *Quinine*, in moderate doses after the crisis, at least until the relapse, which will not be prevented by any amount of quinine (Wa.). *Leeches* or *Cupping*, best for headache (A.). *Alcohol*, required by some patients. *Diet*, supporting, especially in third week, beef-tea, etc. *Urine*, should be watched carefully (A.). [Compare TYPHUS FEVER.]

Remittent Fever.

Aconite, in hot stage, if any febrifuge is required, frequently repeated doses (B.); is next in value to quinine for high fever and headache, gtt. j of a good tincture every hour (Da Costa). *Quinine*, 20 to 30 grs. in single dose once or twice daily till temperature is reduced, with other appropriate remedies (B.); 15 to 20 grs. at most (Maclean); 30 to 50 or 60 grs. in severe cases of pernicious remittents several times a day without regard to exacerbation (P., B.). *Warburg's Tincture*, has achieved a very high reputation, but must be used in less dosage than directed, and supporting treatment given when its sudorific action commences (Wa.). *Gelsemium*, exercises a really beneficial influence; depresses temperature (B.); valuable in bilious remittents of the South (Pf.). *Morphine*, gr. ¼ hypodermically to abort pernicious remittent fever (B.). *Purgation*, by calomel with jalap or salines afterward, is very necessary during course of the disease (Da Costa). *Quassia*, an excellent tonic in convalescence, combined with mineral acids (Wa.). *Packing*, by wet sheet, is resorted to with advantage, except when hepatic or splenic congestion (Wa.).

Retina, Affections of.

Mercury, in syphilitic retinitis is of great value; calomel gr. j–ij with opium gr. ¼–½ every 4 or 6 hours; also mercurial inunction till the gums are affected or the disease yields (Wa.). *Potassium Iodine* and *Bromide*, in combination, in retinal hemorrhage, to promote absorption of the effused blood, and benefit congestion (C.). *Eserine*, locally to contract pupil, and diminish the amount of light admitted to the eye (Wa.). *Iron*, in full doses, generally the tinct. of the perchloride, in pigmentary retinitis; seems to have a tendency to arrest the malady (C.). *Leeches*, to the temple better than general bloodletting (Wa.). When much local congestion present, depletion by artificial leech is almost always indicated (C.). *Pilocarpus*, in detached retina and optic neuritis; has been found a very useful remedy in retinal affections generally. [Compare AMAUROSIS.]

Rheumatic Arthritis.

Aconite, highly spoken of; as liniment, conjoined with internal use (Wa.). *Cimicifuga*, when joints enlarged and much stiffened, and when traceable to uterine derangement, is very useful (R.); when pains worse at night (Wa.). *Iodine*, tinct. internally, said to be better than potassium iodide (R.). *Iodoform*, 10 parts to 20 of Ether and 20 of Alcohol, as liniment to the joint, applied by a pencil, and covered with oiled silk (Gubler). *Iodides*, often signally benefit, especially when due to syphilitic, mercurial, or mineral poisoning (B.). Large doses of potassium iodide sometimes required (R.); combined with guaiacum, or corrosive sublimate, often curative in cases resisting these remedies given separately (Wa.); Potassium Iodide should always be fairly tried (Da Costa). *Guaiac*, the ammoniated tincture, in doses of ʒj–ij in milk, often gives excellent results (Da C.). *Colchicum*, with alkalies, extremely useful (B.). [See GOUT, for formulæ.] *Arsenic*, when referable to nervous affections (B.); as a bath containing ℥iv washing soda and gr. xx arseniate of sodium; in large doses, continued for some time, sometimes of great benefit, but action is capricious (R.); in small doses is of great benefit (Da Costa). *Lithium Salicylate*, very efficient in acute and progressive subacute articular rheumatism, and has some effect also in chronic cases, where some of the joints are deformed, swollen and painful; ʒj may be given daily, in doses of gr. vij to x, in water (Vulpian). *Lithium Bromide*, of great value in acute and chronic (B.). *Potassium Bromide*, sometimes allays the severe pain (R.). *Arnica*, the tincture and infusion are said to be of great value (P.). *Cod-liver Oil*, internally and locally, of much value (R.). *Baths*, Turkish or sulphur. The cold douche, which may be slightly warmed in winter; use for one or two minutes and rub dry (R.). *Adhesions* may be broken up under the anæsthetics (Da C.). *Massage* may be used with benefit to ameliorate the condition in chronic cases, where a cure cannot be obtained (Da C.).

Prescriptions.

℞. Vini Colchici Sem., . . . ʒiij.
Spt. Ammon. Aromat., . . ʒxiij.
M. Sig.—A teasp. every 3 hours, until some physiological effect is produced. (B.)

℞. Lithii Bromidi, ... ʒiij.
Syr. Zingiberis, ... ℥ss.
Aquæ, ... ℥jss.
M. Sig.—A teasp. thrice daily, conjointly with a lotion of the same. (B.)

Rheumatism, Acute.

Aconite, very serviceable when much heat and dry skin (B.); subdues pain in inflamed joints and perhaps shortens the fever (R.); small doses frequently repeated of the greatest value, and if used from the start prevent permanent organic disease (P.); is not reliable as a cure, but a valuable adjunct to other remedies (Wa.). *Veratrum Viride*, tinct. said to be useful (R.); as antipyretic, small doses; may be combined with opium (P.). *Bryonia*, has proved useful, especially for painful and stiff rheumatic joints (P.). *Salicin*, gr. x–xxx every 2, 3, or 4 hours. Gr. xv every 3 hours in powder mixed with water (Maclagan), or same dose of Salicylic Acid, is of great benefit; good effects generally experienced within 48 hours (R.); the acid is better than the salicylates, but must be abandoned if not effective after 3 or 4 days (Da Costa.) *Salol*, the great remedy, none superior (B.). *Sodium Salicylate*, behaves as Salicin (R.). *Oil of Gaultheria*, as a substitute for salicylic acid, used very successfully in form of emulsion (B.). *Rhus Toxicodendron*, positively invaluable in after-stage, also in subacute forms, muscular or tendinous, worse at night (P., Pf.). *Hydriodic Acid*, the syrup, in dessertsp. doses every 2 or 3 hours, the best remedy for acute and subacute rheumatism, relieving pain and swelling in 18 to 24 hours (Craig). *Cimicifuga*, excellent reports from (B.); has been much used, said to quell the pain speedily (R.); found very serviceable (P.). *Dulcamara*, recommended especially in persons who are subject to catarrhal affections in cold and damp weather (P.). *Ammonium Bromide*, a very excellent treatment, followed by quinine; gives a very low proportion of cardiac complications, gr. xv–xx every 4 hours (Da C.); disagreeable but strongly recommended (B.). *Arnica*, lowers pulse and temperature, relieves articular pain and swelling, diminishes urea (P.). *Trimethylamine*, ♏iv–viij in peppermint water, often has remarkable power in acute rheumatism and gout (B.). *Spigelia Anthelmia*, rheumatic pericarditis and endocarditis; rheumatic fever with pain shifting from joint to joint (P.): seems to fix the disease in certain joints, and prevent its shifting around (P.). *Sulphurous Acid*, fumigation, and patient covered with blankets exposed to strong fumes, produces perspiration, sleep and relief (R.). *Colchicum*, alleviates the symptoms, and shortens their duration (Wa.). *Laville's Mixture*, is said to be a tincture of quinine and colocynthine, but it is more than probable that colchicine is the active agent therein. (See N. Y. Med. Record, Dec. 5, 1885, page 642.) *Quinine*, as antipyretic; not so useful as wet pack or cold bath; gr. ij–v after the more acute symptoms have subsided (B.); is best for the head symptoms (Da C.). *Opium*, strongly recommended as anti-rheumatic; gr. j every 2 or 3 hours, increased to gr. xij in 24 hours; tolerance remarkable in this disease. Also, in rheumatic carditis it is indispensable (Wa.); a very good remedy in moderate doses (Da C.). *Lithium Bromide*, equally good in all forms, especially for insomnia, delirium, etc. (B.). *Digitalis*, in powder, gr. ij every 4 hours, usually effective after 2 to 7 days; especially useful in cardiac complications with cyanosis and œdema. *Iron*, tincture of chloride very serviceable in pale, delicate subjects, ♏xx–xxx every 4 hours; also as prophylactic where tendency (Anstie); harmful to the plethoric and overfed (B.). *Alkalies*. The alkaline treatment is now seriously questioned; an injurious dyscrasia results from their use (B.). Potassium Bicarbonate, gr. xxx every 4 hours, in a dilute solution, until joint-symptoms and fever disappear (Wa.). *Lime-juice*, ℥viij daily, lemon-juice inferior (R.). *Blisters*, are a very effective method; a number of small blisters applied to vesication around a joint (B.); large flying blisters around a joint (R.). *Water*, cold baths for the hyperpyrexia (Da C.); the wet pack very efficacious in rheumatism, also a vinegar vapor bath (B.); the wet pack, 20 or 30 minutes, and tepid (70°) shallow bath 1 or 2 minutes. Cold applications only when skin hot and dry, and temperature high. Warm baths, or hot compresses very useful. Spongiopiline an excellent substance for applications. *Diet*, low during the fever, water, barley-water, milk-and-water, gruel, etc. All through use liquid food. Avoid malt liquors, port wine, and sugar. Lemon-juice may be used freely. *Blankets*, instead of sheets to sleep in, and flannel underclothing are useful adjuncts. *Pack* the joints with cotton covered with rubber cloth or oilked silk.

Plans of Treatment, may be resolved into three, viz.,—(1) that by Salicin, (2) that by Alkalies, (3) that by Iron. *Salicylic Acid and the Salicylates*, in 20-grain doses, to not less than ʒij in 24 hours, in solution with excess of alkali, is especially suited to vigorous, sthenic subjects, whose stomachs will bear it, in whom it often effects a cure in 3 or 4 days. *Alkalies*, for flabby, fat subjects; alkaline carbonates, as the Potas. Carb., ℥jss, every 24 hours, alone or with a vegetable acid, until the urine becomes neutral or alkaline, when it may be reduced one-half, and so maintained for some days, when quinine or iron may be used. If successful, this treatment brings about a cure in two weeks. *Tincture of the Chloride of Iron*, for the feeble, anæmic, and nervous subjects, ♏xxx every 4 hours, with an occasional saline laxative, blisters around joints, and *Atropine* as an anodyne rather than Opium, used hypodermically in the vicinity of the affected joints (B.). *Iron* and *Salicylic Acid*, in combination, should be most valuable, but as heretofore prescribed has always made an insoluble precipitate. This is overcome by Dr. Peabody in the formula given below, which makes a ruby-red mixture, and has the advantage of preventing the anæmia which results from Salicylic Acid given alone.

Cardiac Complications require *Ammonium Carbonate*, in 5-grain doses frequently, also *Infusion of Digitalis* with hypodermics of *Morphine*, and a blister over the præcordium, followed by *Iron and Quinine* after the acute symptoms have subsided (B.).

Prescriptions.

℞. Olei Gaultheriæ, ... ʒj.
Acidi Salicylici, ... gr. lxxx.
Sodii Boratis, ... ʒj.
Syr. Picis Liquidæ, . . . ℥ij.
Aquæ Anisi, ... ℥ij.
M. Sig.—A dessertsp. every two hours.

℞. Propylaminæ Chlorid., . . gr. xxiv.
Aquæ Menthæ Pip., . . . ℥vj.
M. Sig.—A tablesp. every two or three hours. (*Tyson.*)

℞. Acidi Salicylici, ... ʒij.
Ferri Pyrophosphat., . . . ʒj.
Sodii Phosphatis, ... gr. xij.
Aquæ, ... ℥vj.
M. Sig.—A tablesp. every 2 hours.
(*Peabody.*)

℞. Potassii Iodidi, ... ʒij.
Vini Colchici Sem.,
Syr. Simplicis, ... āā ℥iv.
Aquæ Menthæ Pip., . . . ℥v.
M. Sig.—Tablesp. every 4 hours.
(*New Orleans Charity Hosp.*)

℞. Ammonii Phosphatis, . . . ℥jss.
Tinct. Colchici Seminis, . ʒj.
Tinct. Aconiti, ... ℥ij.
Syr. Simplicis, ... ℥iij.
M. Sig.—A teasp. every three or four hours. (*Corson.*)

℞. Sodii Salicylatis, ... ℥ss.
Tinct. Lavand. Co., . . . ʒiij.
Glycerini, ... ℥vj.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—A tablesp. every three hours, well diluted.

Rheumatism, Chronic.

Arsenic, is very good in most cases, given in small doses steadily (Da C.); with Guaiac instead of Sulphur in the Chelsea Pensioner (see *ante*, page 470), the latter is more efficient (Fothergill). *Bryonia*, is useful, especially for painful and stiff joints (P.). *Rhus Toxicodendron*, a very powerful agent in subacute muscular or tendinous rheumatism, worse at night (Pf.); the tendons, ligaments, and fasciæ are most benefited; externally, as lotion on compresses; also, internally, small doses every two hours (P.). *Potassium Iodide*, especially when pains are worse at night, or of syphilitic origin (R.); should always be fairly tried in chronic rheumatism (Da C.); was Sir Astley Cooper's remedy for rheumatism. *Cimicifuga*, sometimes has wonderful success, yet often fails; no indications (B.); in rheumatic neuralgias and headaches, and rheumatism of uterus (P.); signally beneficial in many forms (R.). *Mercury*, and *Morphine*, the oleate locally, for joint affections (R.). *Colchicum*, is of decided advantage in neuralgia of chronic rheumatism (B.). *Mezereon*, strongly recommended (P., R.). *Phytolacca*, has been useful (B.). *Iodides* often prove very satisfactory, especially in strumous or syphilitic subjects (B.). *Aconite*, the extract as plaster to joints is unquestionably very useful (P.); is more useful in chronic than acute rheumatism (Wa.); the liniment of the B. P. locally over the sciatic nerve when affected (Fothergill). *Dulcamara*, has been employed with advantage (P.). *Sulphur*, locally, also sulphides as baths (R.); is certainly of benefit (B.); sulphur waters are undoubtedly efficient (Da C.); sulphur is an ingredient of the Chelsea Pensioner (see *ante*, p. 470), an old English remedy for rheumatism. *Iodine*, for pain around joints (R.). *Lithium Bromide*, gives excellent results, when smaller joints swollen, tender (B.). *Lithium Salicylate*, in 15 to 20 grain doses every four hours, gives good results in lingering, subacute cases after acute attacks (Da C.). *Quinine*, in rheumatism with debility, shown by night sweats, or sweats during sleep, and only then (Wa.). *Arnica*, the tincture and infusion are useful (P). *Cajeput Oil*, internally and externally in muscular rheumatism (P.). *Turpentine*, benefits and relieves the pains; internally and externally as liniment (P.). *Guaiac*, used with varying success (B.); often gives excellent results; the ammoniated tincture, ʒj–ij in milk (Da C.); is vile to the taste. *Eucalyptus*, the leaves wrapped around the affected part, renewing them daily for a week or more, often very efficient as a local stimulant, and will produce vesication if too long continued (Gibbons). *Xanthoxylum*, has long had deserved reputation, ♏xv–ʒij fluid extract (B.). *Thuja Occidentalis*, is useful for rheumatic pains (P.). *Manganese Sulphate*, is one of the remedies (B.). *Belladonna*, the extract locally very valuable for pains (P.). *Cod-liver Oil*, internally and externally, exercises some influence (B.). *Chimaphila*, may prove useful, especially when lithiasis (P.). *Lupulin*, as an anodyne (P.). *Burgundy Pitch*, as plaster locally (P.). *Aliment*, avoid alcoholic and malt liquors, coffee, also starchy, animal and saccharine food. The farinaceous vegetables and acid fruits suitable (B.). Alkaline mineral waters have deserved reputation (B.). *Turkish Baths*, in chronic muscular rheumatism (B.); steam bath daily of great benefit, may be obtained at home by pouring water on hot bricks in a tub, the patient sitting on a board or chair above, enveloped in a blanket (Brick). *Red Flannel*, next skin, very popular, but white better, as the red gives rise often to eruptions (Da C.). [Compare LUMBAGO, MYALGIA, PLEURODYNIA, RHEUMATIC ARTHRITIS, SCIATICA.]

Prescriptions.

℞. Pulv. Resin. Guaiaci,
Potassii Iodidi, . . . aa ʒj.
Tinct. Colchici Seminis, . . ʒiij.
Aquæ Cinnamomi,
Syrupi, ... aa q. s. *ad* ℥vj.
M. Sig.—A dessertsp. to a tablesp. thrice daily. (*Pepper.*)

℞. Tinct. Guaiaci Æther., . . ℥j.
Tinct. Colchici Æther., . . ʒvj.
Tinct. Cann. Ind. Æther., . ʒij.
M. Sig.—25 to 30 drops on sugar, every 4 hours, for rheumatic and neuralgic symptoms. (*Atlee.*)

℞. Linim. Aconiti (B. P.),
Linim. Belladon., . . aa ʒij.
Glycerini, ... q. s. *ad* ℥ij.
M. Sig.—Apply locally over the seat of pain. (*Fothergill.*)

℞. Olei Sinapis, ... ʒss.
Olei Terebinth., ... ʒij.
Camphoræ, ... ʒiv.
Liq. Ammon. Fort., . . . ʒij.
Tinct. Capsici, ... ʒiv.
Alcoholis, ... q. s. *ad* ℥vj.
M. Sig.—Russian Spirit, a liniment for rheumatism.

℞. Ac. Arseniosi, ... gr. iij.
Pulv. Guaiaci, ... ʒiij.
Pulv. Capsici, ... ʒss.
Pil. Aloes et Myrrh., . . . ʒiij.
Ft. pil. no. cxx. Sig.—One thrice daily.
The modified Chelsea Pensioner.
(*Fothergill.*)

℞. Potassii Iodidi, ... ʒj.
Potassii Nitratis . . . . ʒss.
Ext. Cimicif. Fl.,
Glycerini, ... āā ℥ss.
Vini Colchici Sem. . *ad* ℥ij.
M. Sig.—A teasp. after each meal.
(*Potter.*)

Rheumatism, Gonorrhœal.

Opium, as Dover's powder, in the acute stage, full doses (Wa.). *Potassium Iodide*, with tonics and stimulants, after the acute stage has passed, followed by friction, shampooing, and passive movements of the joints (Wa.). *Ammonium Chloride*, in free doses, especially when the muscles are affected (Fuller). *Potassium Chlorate*, internally, and as urethral injection, until urethral discharge is entirely stopped, then ♏xx of tinct. ferri. chlor. 4 times daily, with gr. x of quinine daily, and good food (Da Costa). *Aspirate*, when pus is discovered around the joints, as the case will be one of pyæmic rheumatism, and may involve more joints than one (Da C.).

Rheumatism, Muscular.

Diaphoretics, as Dover's powder, with Potassium Nitrate, or Salts of Ammonium, with dry heat to the part involved and rest in bed (Da C.). *Morphine and Atropine*, gr. $\frac{1}{4}$ and gr. $\frac{1}{96}$, together hypodermically, are of great service in most forms (R.). *Lithium Bromide*, is almost specific (B.). *Jaborandi*, or Pilocarpine hypodermically, to get the skin acting freely, a great desideratum (Da C). *Potassium Iodide* and *Colchicum*, or *Quinine*, gr. xij–xvj in 24 hours, if case lingers over a week (Da C.). *Liniments* are of little use except to amuse the patient, but Chloral ℥j in ℥vj of Linim. Saponis, makes a good one (Da C.). *Capsicum*, powdered, with lard, ʒij ad ℥j, rubbed over the part, night and morning, with a gloved hand, is very efficient (Macdonald). *Cimicifuga*, is often very efficient in lumbago, myalgia, pleurodynia, and similar conditions (Wa.). *Xanthoxylum*, gives relief in some cases of muscular rheumatism (B.). *Lithium* and its salts, where there is a uric-acid diathesis (B.). *Colchicine*, 5-minim doses of a $\frac{1}{10}$ solution of Merck's, hypodermically into affected muscles, thrice daily, very effective in cases resisting other treatment. [Compare Lumbago, Myalgia, Pleurodynia, Torticollis.]

Roseola.

Scarcely any treatment called for; no local application needed, as the rash is but slightly irritating. *Aconite* or *Belladonna*, according to the symptoms, or the *Carbonate of Ammonium*, answers all the indications. [Compare Measles.]

Sarcinæ.

Sulphites and *Hyposulphites*, have been employed to destroy sarcinæ and torulæ in the stomach (R.); or *Sulphurous Acid*, diluted, before each meal (Wa.).

Scabies.

Sulphur, a solution of potassa sulphurata ʒss–℥j, as local application. An extemporaneous sulphide may be made by boiling one part of quick-lime and two of sulphur in ten of water (B.). Sulphurous acid, as gaseous bath, the quickest method. Hebra's mixture of sulphur, chalk, tar, soap and lard, less irritating, and equally sure (R.). *Calcium Sulphide*, as a bath (W.). *Sulphuric Acid*, internally, has cured when other remedies failed (Wa.). *Storax*, equally serviceable and not irritating as is sulphur, one part to two of olive oil, with a warm bath (R.). *Mercury*, the bichloride is very efficient, if used strong enough, but caution is required in its employment (B.). See formula below. *Staphisagria*, a certain remedy; 3 parts to 5 of lard, boiled at 212° F. for 24 hours, when cooled after straining add a little essence; friction with this 4 times daily (Wa.). *Balsam of Peru*, the best of all applications, killing the acarus, relieving the itching and dermatitis, and disinfecting the parts; rub in ʒj over the body after a warm bath (Bruce); is fatal to the itch-mite (Oldberg). *Manganese*, the oxide, ʒij–℥j adipis suilli as ointment (B.). *Copper Sulphate*, as lotion (℥j–Oj) has been used with great success, after crusts are thoroughly removed with soap-and-water (B.) *Alkalies*, as soaps or ointments to remove cuticle and break up burrows (R.). *Carbolic Acid*, locally (B.). [See TINEA for formula.] *Cocculus Indicus*, as ointment, useful (P.). *Tar Ointment*, relieves itching quickly and cures disease in 10 or 12 days (P.). *Anise, Kamala*, as ointments, efficient (P.). *Benzoic Acid*, gr. x–xx ad O½ aquæ, as lotion, effectual for the pruritus (R.). [See last formula on left-hand column, under PRURITUS.] *Linen* should be immersed in boiling water; other garments well fumigated with sulphur vapor to destroy insects or their ova, or baked in oven (R.).

Prescriptions.

℞. Styracis Liquidis, ... ʒij.
Ung. Sulphuris, ... ℥iv.
Ung. Petrolei, ... *ad* ℥j.
M. Sig.—Apply after washing.
(*Bulkley.*)

℞. Hydrarg. Chlor. Corr., . . . gr. iv.
Alcoholis, ... ʒvj.
Ammonii Chloridi, ... ℥ss.
Aquæ Rosæ, . . . q. s. *ad* ℥vj.
M. Sig.—Lotion for scabies, phtheiriasis, and tinea versicolor. (*Fox.*)

℞. Sulph. Sublimat., ... ʒj.
Balsam. Peruv., ... ʒss.
Adipis, ... ℥j.
M. Sig.—For children. (*Duhring.*)

℞. Sulph. Sublimat.,
Olei Cadini, ... āā ʒij.
Cretæ Preparatæ, ... ʒijss.
Saponis Viridis,
Adipis, ... āā ℥j.
M. ft. unguentum. (*Bulkley.*)

Scarlatina.

Aconite, of the highest value for all marked increase of temperature (B., R.); helps the development of eruption when due (P.); in the early stage, when not decidedly adynamic, is very useful (W.). *Belladonna*, during the eruptive stage, when depression exists, and rash is imperfectly evolved (B.). As prophylactic has been recommended (R.); is often efficacious as prophylactic (P.); the preponderance of evidence is certainly in favor of such use of the drug (Pf.); this virtue is claimed by imposing authorities; when so given its dose is gr. $\frac{1}{7}$ several times a day (Tr.). *Mercury*, gr. $\frac{1}{3}$ of gray powder every hour has marked effect on inflamed tonsils (R.). *Ammonium Carbonate*, feeble circulation, cyanosis, delirium (B.); in all forms, especially if given early (R.); one of the most reliable remedies; gr. iij–vij, according to age, in milk or cinnamon water, every hour or two (Wa.). *Potassium Iodide*, in full doses, a very satisfactory remedy (Mitchell). *Mineral Acids. Muriatic*, internally and as gargle; *Nitric*, to sloughs in throat (R.). *Carbolic Acid*, internally and as gargle, successfully used. [See MEASLES, for formula.] Seems to exercise some influence as prophylactic (Wa.); is good for the vomiting and for its general effect on the disease; ♏ss, every 2 or 3 hours (Da Costa). *Veratrum Viride*, in convulsions (R.). *Rhus Toxicodendron*, of great service, if typhoid or rheumatic symptoms (P.). *Digitalis*, very useful; lowers temperature and maintains kidney action (B.); the best antipyretic and diuretic, the infusion with dry cups for the renal dropsy in its inception. Later on, milk diet and Basham's Mixture (Da C.). *Potassium Permanganate*, locally to throat, and internally (gr. ¼–j ter die) has undoubted benefit (B.). *Sulphurous Acid*, by inhalation, spray, or fumigation, in malignant sore throat (R.). *Chlorine Water*, in sloughing of throat (R.); seemingly prophylactic (Wa.). *Quinine*, small doses, in adynamic states, large in hyperpyrexia (B.); very successful when

sed systematically from the start (Wa.). *Ferrum Perchloride*, the tincture in
oses of ♏x–xv, according to age, in advanced stage, when with albuminuria
nd hematuria, is very valuable (Wa.). *Potassium Chlorate*, in grain-doses
very ½ hour, will not injure the kidneys, and will give equal results as larger
oses on the throat inflammation (A. A. Smith). *Asclepias*, to promote the
ruption (W.). *Zinc Sulphate*, gr. $\frac{1}{18}$ every 3 hours, believed to have specific
nfluence on the disease (Hoyt). *Sodium Benzoate*, is highly efficient, having
ower but more permanent effects on the fever than quinine or the salicylates
Klebs). *Boric Acid*, makes an excellent gargle (Da C.). *Juniper*, as diuretic
hen dropsy (R.). *Magnesium Sulphate*, as purgative, to prevent sore throat
nd other sequelæ (R.). *Sodium Sulpho-carbolate*, as a means of introducing
arbolic acid into the system. Has been successfully employed (Wa.). *Mustard*
Bath, on recession of rash, to bring it back (R.). *Oil Inunctions*, very grateful,
specially useful in desquamative stage. Cocoa-butter the most elegant (B.).
e sucked, in the sore throat (R.). *Water*, cold baths with oil are all that are
eeded in mild cases. When temperature above 104°, urine scanty and rash
etroceding, the cold wet-pack renders signal service (B., R.). A cold wet com-
ress to neck, through the whole course, renewed every 3 hours (R.). *Diet*,
uit, if ripe, in season, toast, gruel, etc., in simple cases. In malignant, extract
f beef, stimulants as per pulse. Milk the most suitable aliment, both as
utrient and as diuretic.

Prescriptions.

Ac. Borici, ... ʒ ss.
Potassii Chloratis, ... ʒ ij.
Tinct. Ferri Chloridi, . . ʒ ij.
Glycerini, Syrupi, . . . aa ℥ j.
Aquæ, ... ℥ ij.
M. Sig.—Tablesp. every 2 hours, to a
hild of five years. (*Smith.*)

Acidi Carbol., ... ʒ ss–j.
Vaselini, ... ℥ iv.
M. Sig.—By inunction to the entire sur-
ace.

℞. Acidi Salicylici, ... ʒ ij.
Tinct. Aconiti, ... gtt. xij.
Infusi Digitalis, ... ℥ jss.
Spt. Ammon. Aromat., . . ʒ iij.
Syr. Aurantii Cort., . . . ℥ ss.
Aquæ, ... ℥ j.
M. Sig.—Teasp. every 3 hours, for a
child of five years. (*Brown.*)

℞. Acidi Borici, ... ʒ iij.
Glycerini, ... ℥ iv.
M. Sig.—For a pint of water as a gar-
gle. (*Da Costa.*)

Sciatica.

Aconite, locally (P.); as ointment controls in some instances (R.); valuable
nd efficient in many obstinate forms (Wa.). *Rhus Toxicodendron*, a very pow-
rful therapeutic agent in various rheumatic affections of the fibrous tissues (P.).
imicifuga, is highly extolled (R.). *Turpentine*, causes an exquisite sensibility
long the track of the great nerves (Tr.); occasionally of great value in sciat-
ca, yet not a specific, nor have we scientific indications for its use (P.); ℥ss
oses for 4 or 8 successive nights (R.). *Sulphur*, locally, believed to relieve
he pain; effect probably due to the flannel surrounding it (R.); is worthy of
rial after active symptoms are subdued (Wa.). *Phosphorus*, in neuralgic form;
ess satisfactory in sciatica than in other neuralgias (R.). *Nux Vomica*, often
uccessful in chronic (Wa.). *Belladonna*, has afforded relief (R.). *Atropine*,
ypodermically, is curative; large doses, gr. $\frac{1}{50}$ to $\frac{1}{30}$ in vicinity of nerve (B.).
ocaine, hypodermically along the nerve, has afforded instant relief (Wa.).
eratrine, as strong ointment; *Veratrum Viride*, as tincture, is also recom-
ended (R.). *Ammonium Chloride*, in mild forms (R.); occurring in the young
Anstie). *Ether Spray*, generally of temporary value (R.); *Chloroform*, on
annel along course of nerve, covered with oiled silk (Wa.); injected deeply
nto vicinity of nerve, gives the best results in old cases, ♏xv of the spirit hypo-
ermically (B.). *Stramonium*, gr. ¼–½ every 3 or 4 hours for 4 or 5 doses,
ften affords decided relief. Stop when slightest symptoms of narcotism appear
P.). *Opium*, internally and externally (Wa.); *Morphine*, hypodermically is

especially curative in sciatica (B.); 3 or 4 injections of gr. ⅙ each; it may almost be regarded as a specific (Wa.); a single application sometimes cures long-standing cases permanently; if not it may be repeated every second day or so (R.); should be injected deeply into the adjacent muscular structure (Pepper). *Iodides*, in syphilitic or metal poisoned subjects (B.); often fails (R.). Potassium Iodide in doses of ʒj daily, dissolved in decoction of sarsaparilla, most efficacious in subacute or chronic (Wa.). *Salicylic Acid*, as paste locally, ʒj with ℥iv of Lanolin and Ol. Olivæ, q. s., also *Rhus Tox.*, gtt. j of a 1 per cent. solution of the fluid extract every 4 hours, cured one very obstinate case (Aulde). *Salol*, gr. vij in evening and gr. xv more at midnight, completely cured me after 3 weeks' suffering in bed, unrelieved by other remedies (Aschenberg). *Cold* of intense degree, produced by refrigeration of limb by Methyl Chloride, extremely efficient (Jacoby). Has been found effectual when applied to the sound limb. *Cantharides*, as counter-irritant, to free vesication (R.). *Aquapuncture*, has had extraordinary success (B.). [See under NEURALGIA.] *Acupuncture*, occasionally affords instant relief (B.); often cures cases of long standing (R.). *Nerve-stretching*, by forcibly flexing the thigh on the abdomen (Lange). *Poultices*, applied very hot (R.). *Turkish Baths*, are often very useful (R.). *Electricity*, produces excellent results (B.); does great good, but often aggravates; the continuous current best, when stage of acute inflammation past (W.); galvanism often quickly relieves the pain (Pepper). *Cod-liver Oil*, should always be tried in obstinate cases (W.). [Compare NEURALGIA, RHEUMATISM CHRONIC.]

Prescriptions.

℞. Tinct. Colchici Seminis,
Tinct. Belladonnæ,
Tinct. Aconiti, ... āā ʒj.
M. Sig.—♏vj every 6 hours. Remarkably efficient. (*Metcalf.*)

℞. Tinct. Colchici Sem.,
Tinct. Cimicifugæ,
Tinct. Belladonnæ,
Tinct. Aconiti, ... āā ♏xv.
M. Sig.—♏iij every 4 to 6 hours.
(*Metcalf.*)

Scleroderma.

Cod-liver Oil, our sheet-anchor, used internally and locally (B.). *Electricity*, is used successfully (B.); with stimulating inunctions offers the best prospect of improvement (Bulkley).

Scrofulosis.

Iodides, the Iodide of Ammonium when glandular enlargement; that of Iron when debility and emaciation, a powerful and efficacious remedy; also in anæmia of scrofula, the syrup ♏xx–ʒj, ter die (Wa.); disappointing, useful in simple glandular hypertrophy (B.). *Iodine*, tinct. or oint. applied over scrofulous glands—take care not to increase inflammation (R.). Iodine and Iron the best remedies, but all medicines utterly useless without strict hygiene (A.). *Calcium*, the chloride, in doses of gr. x–xx in milk after food, when glandular enlargement of neck and chronic diarrhœa. The phosphate of great use for sores (R.); is of eminent service as a palliative (Wa.); see *Sulphides* below. *Spongia Usta*, formerly held in high repute; has fallen into perhaps unmerited neglect. Contains sodium iodide, magnesium bromide, calcium phosphate, and ferric protoxide, in small quantities (Wa.). *Iron*, ferrum and calcium phosphates combined give good results, also chalybeate waters (B.); must be long continued (R.). *Sulphides*, for sores, abscesses, suppurating glands; gr. $\frac{1}{10}$ or $\frac{1}{20}$ of calcium sulphide every hour or two (R.). *Coniine*, grain ½ to ℥j almond oil, locally, two or three times a day to conjunctivæ in "scrofulous" photophobia; has proved very successful (P.). *Cod-liver Oil*, the best remedy to promote assimilation (B.); of great service in the various manifestations of this disease (R.). *Stillingia*, a domestic remedy, used with much success (B.). *Capsicum*, in scrofulous and fistulous ulcerations, a weak infusion becomes a useful stimulant (P.). *Mezereum*, strongly recommended (P.). *Sarsaparilla*, useful by reason of its tonic and alterative properties (P.). *Hyoscyamus*, the bruised leaves as cataplasm for scrofulous ulcers (P.). *Phosphates*, for mal-nutrition (B.). *Prunus Virginiana*, is found very useful in the hectic (P.). *Chimaphila*, holds a certain amount of reputation as a useful remedy (P.). *Tussilago*, was employed by Cullen (P.). *Gentian*, is valued. As infusion a useful vehicle for chalybeates, etc. (P.). *Blisters*, for scrofulous glands (R.). *Grape-cure*, renders much service (B.). *Alcohol*, no doubt as to its great value; with cod-liver oil, or in small amounts at meals (Wa.). *Phosphorus*, eminently serviceable in scrofuloderma, gr. x in Ol. Olivæ ℥j, doses of ♏v–x, thrice daily after meals (Broadbent). *Aliment*, raw or broiled meat, the latter for children. Abundance of fresh air and sunshine. *Sea-air*, sunlight, moderate exercise, and light, digestible food are necessary. [Compare CACHEXIÆ, GLANDS, COXALGIA, OPHTHALMIA.]

Scurvy.

Citric Acid, used with great advantage, though inferior to lemon-juice (Wa.). *Lemon-* or *Lime-juice*, of the utmost value, both as preventive and a curative agent. Efficacy believed to be due to its potassium salts. Oranges highly useful (Wa.). *Acids*, especially vinegar, to prevent scurvy, in the absence of lime-juice or fresh vegetables (R.); dilute Muriatic Acid, gtt. v, thrice daily with juice of three lemons daily, vegetables and fresh meat (Da Costa). *Potassium Chlorate*, is probably a remedy of some value (Wa.); is not (W.). *Cinchona*, a decoction, or the dilute tincture with myrrh or the chlorates, a very useful gargle. *Quinine*, internally when much prostration, combined with mineral acids (Wa.). *Alcohol*, diluted, as gargle (R.). *Atropine*, hypoderm. for salivation (R.). *Alum*, a solution in water with tinct. myrrhæ ℥ss, several times daily as lotion for ulceration of the gums (W.). *Liquor Sodæ Chloratæ*, ʒvj ad ℥xij aquæ, as a mild application to gums (Wa.). *Dietetic Treatment* alone required. Lemon-juice plays no essential part in the treatment. The full diet of an hospital, comprising fresh meat, vegetables, and milk, is generally sufficient. [Compare CANCRUM ORIS, PURPURA.]

Sea-sickness.

Chloral, the most effective remedy; gr. xv–xxx every four hours (R.). *Staphisagria*, has given relief (P.). *Creasote*, checks the vomiting (R.). *Chloroform*, drop doses pure (R.); ♏ij–v on sugar (B.). *Atropine*, hypodermically, gr. $\frac{1}{120}$ in epigastrium, will relieve (B.); gr. $\frac{1}{300}$ to $\frac{1}{200}$ given with *Strychnine*, gr. $\frac{1}{75}$ to $\frac{1}{50}$ hypodermically, is really specific in most cases, and in some if given before sailing, will prevent for the whole voyage, though but one dose be administered (Giberson). *Cocaine*, quite efficient, the hydrochlorate in water 1 to 100, of which ♏iv–v on a bit of ice thrice daily (Otto). *Morphine*, gr. $\frac{1}{12}$ to $\frac{1}{6}$ hypodermically, will often relieve severe cases (B.); often fails (Wa.). *Amyl Nitrite*, by inhalation (B.); is strongly recommended, but must be cautiously used. *Champagne*, iced; tablesp. doses every quarter-hour (B.). *Calumba*, a few drops of the tincture will sometimes relieve (B.). *Spinal Ice-bag*, often successful (R.). *Cocaine* is reported quite successful. *Bromides*, in full doses (Beard). [Compare NAUSEA, VOMITING.)

Seborrhœa.

Glycerin, especially useful; with lead acetate, borax, zinc, diminishing secretion; also acts efficiently when there is a want of sebaceous secretion (W.). *Zinc Oxide*, ʒj, plumbi carbonat. ʒj, cetacei ℥j, ol. olivæ q. s. Ft. unguent (B.). *Oleate of Arsenic*, is of benefit (Wa.). *Mercury*, an ointment of the white precipitate is serviceable on the scalp, with an occasional shampoo with tar soap or green soap in solution, followed later by mildly stimulating lotions (Bulkley). [Compare ACNE, PITYRIASIS.]

Sneezing.

Arsenic, a drop of liquor arsenicalis three times a day in paroxysmal sneezing, allied to asthma (R.). *Potassium Iodide*, gr. x, several times a day (R.). *Iodine*, inhalations in paroxysmal sneezing, with itching of nose (R.). *Camphor*, in incessant sneezing, with profuse running from eyes and nose. The powder should be snuffed, or the alcoholic solution inhaled (R.). [Compare CATARRH, HAY-FEVER, INFLUENZA.]

Somnambulism.

Potassium Bromide, will give decided relief in the somnambulism of children allied to epilepsy, often with squinting, which may become permanent; generally the result of deranged digestion. The nightmare of adults will usually yield to the same drug (R.). [Compare NIGHTMARE.]

Spasmodic Affections.

Aconite, ext. and int. for spasms not of a severe type; *Aconitine*, as ointment in the most severe, as well as in the milder local spasmodic affections; in angina pectoris, spasmodic asthma, cough, etc. (P.); in spasmodic laryngitis of good effect (R.). *Camphor*, in many forms said to relieve, as strangury, etc. (R.). *Belladonna*, of value for spasms of sphincter muscles, especially of pelvic organs (P.); atropine hypoderm. in local spasm (R.). *Strychnine*, of great value in spasmodic asthma (P.); also in tetanus, chorea, and epilepsy (Pf., S.). *Veratrine*, as solution, brushed over lids once a day in painful spasmodic contraction of the orbicularis (Wa.). *Opium*, very useful as an antispasmodic, especially if given with a stimulant, as alcohol, ether, or chloroform (R.). *Ipecacuanha*, in spasms of respiratory organs, of great value (P.). *Chamomile Oil*, in spasms of hysterical persons, in 4 to 6 ♏ doses, a very excellent remedy; also useful in pseudo angina pectoris (P.). *Lobelia*, a valuable antispasmodic in cautious hands (P.). *Lupulin*, in gouty spasms (P.). *Tobacco*, in spasmodic asthma, and for relaxation of muscular spasms (P.). *Sumbul*, in gastric spasms is of use (P.). *Cardamoms*, are usefully employed in gastric spasms (P.). *Ammonia*, useful in children's colic (R.). *Chloroform*, inhaled for intestinal spasm (R.). *Sulpho-carbolates*, in flatulent "spasm," sometimes phosphorus better (R.). *Mustard Poultice*, an excellent counter-irritant in spasmodic affections (P.). [Compare list of Antispasmodics on page 28, and in this section the titles ANGINA PECTORIS, ASTHMA, CHOREA, COLIC, COUGH, CONVULSIONS, CROUP, DYSURIA, EPILEPSY, GASTRODYNIA, HYDROPHOBIA, HYSTERIA, LARYNGISMUS, PERTUSSIS, TETANUS, TORTICOLLIS, TRISMUS.]

Spermatorrhœa.

Potassium Bromide, when plethora-erections normal, but persistent and teasing; is harmful in debilitated states, or daily losses (B.); with cold sponging and use of a hard bed (R.). *Digitalis*, ʒj or ij of the infusion twice or thrice daily; few remedies are more successful in arresting spermatorrhœa (R., P.); feeble erections, frequent emissions, cold hands and feet (B.). *Cantharis*, deficient tone of seminal vesicles, erections feeble, sexual feeling torpid; tinct. gtt. ij–iij ter die (R.); with Iron internally in emissions (R.). *Phosphorus*, for the induced physical and mental debility; also, hypophosphites of lime and soda (R.). *Gelsemium*, as anaphrodisiac, may be combined with Belladonna or Cimicifuga (B.). *Nux Vomica*, relaxation and atony (B.). *Strychnine*, in large doses, especially when impotence (R.). *Quinine* has been recommended (R.). *Belladonna*, gr. ¼ of extract with gr. jss zinci sulphat., three or four times a day, often successful in nocturnal emissions (R.). *Atropine*, relaxed genitalia, no dream or orgasm (B.). *Camphor Bromide*, has been useful (W.). *Lupulin*, is a good anaphrodisiac; with Camphor, when a genital sedative is required (B.). *Iron*, the iodide, useful in anæmic cases (B.). *Ergot*, beneficial in relaxed state (B.). *Hydrastis*, is a useful injection, gtt. x of the fluid ext. through a urethral tube to the prostatic portion of the urethra (B.). *Cimicifuga*, useful in weak, relaxed conditions (B.); with hypochondriasis, very beneficial (P.). *Silver Nitrate*, a vesicating solution applied to perineum generally useful, and without danger (B.). *Arsenic*, when from weak and relaxed seminal vesicles. *Kind Advice*, frequently the best treatment, as this is often the phantasm of a morbid imagination. *Bladder* should be emptied after the first sleep. [Compare EMISSIONS, also List of Anaphrodisiacs on page 47.]

Prescriptions.

℞. Potassii Bromidi, ... ʒj.
Sodii Bicarbonat., . . . gr. xv.
Infusi Digitalis, ... ℥ss.
Atropinæ Sulphat., . . . gr. $\frac{1}{80}$.
M. Sig.—One dose, to be taken at bedtime. (*Gross.*)

℞. Tinct. Gelsemii, ... ʒj.
Tinct. Belladonnæ, . . . ʒij.
M. Sig.—15 drops thrice daily. (B.)

℞. Lupulini, ... gr. x.
Pulv. Camphoræ, . . . gr. vj.
Ext. Belladonnæ, . . . gr. ij.
M. ft. pil. no. xij. Sig.—One pill thrice daily. (B.)

℞. Tinct. Cantharidis, . . . ʒij.
Tinct. Ferri Chlor., . . ℥vj.
M. Sig.—20 drops in water thrice daily. In impotence with spermatorrhœa, of great utility. (*H. C. Wood.*)

Spina Bifida.

Iodine, injected into the sac, ʒss of tinct., or gr. ss, with potassium iodide gr. v, aquæ ʒj, has cured numerous cases (B.); iod. gr. ⅝, pot. iod. gr. ½ ad aq. ʒj (Wa.). *Collodion*, as a means of compression (B.).

Spinal Concussion.

Lead-Water and *Opium*, as lotion over the seat of injury (A.). *Leeches*, if pain persistent (A.).

Spinal Congestion.

Ergot, gives excellent results (Brown-Séquard). *Turpentine*, hot epithems, useful (Wa.). *Antiphlogistic* measures, with rest and absolute diet; wet cups or leeches to the column; cool affusions to the spine while patient in a warm half-bath (Ros.). [Compare MENINGITIS.]

Spinal Irritation.

Aconite, as ointment locally (R.). *Belladonna* preparations, locally, generally are better than Aconite (B.). *Ignatia*, in small doses diminishes irritability of cerebro-spinal axis (Pf.). *Strychnine*, persistently, will ameliorate wandering neuralgic pains due to irritability of nervous system (B.). *Ergot*, large doses for congestion (Hammond). *Conium*, in functional derangement of the cord, with excessive irritability of the reflex function (Wa.). *Firing*, sometimes very beneficial (B.). *Electricity*. An inverse galvanic current gives much relief (Hammond). *Blisters*, with hot-water bag to spine, large doses of strychnine, phosphorus, phosphoric acid, and opium, are the methods based upon the anæmic theory of the disease. Out of 156 cases 133 were thoroughly cured (Hammond). [Compare MENINGITIS, MYELITIS.]

Spinal Paralysis and Softening.

Ergot, to starve the inflammation by occluding the spinal arteries (Hammond). *Electricity*, best; galvanic current from spine to nerves and muscles (Ros.). Treatment must be palliative and supporting only, in softening (H.).

Splenic Affections.

Mercury Biniodide, gr. j ad unguent. ʒj, rubbed in before a hot fire, has given excellent results in chronic malarial enlargements of spleen (Wa.). *Quinine*, in simple malarial enlargement (B.); gr. xv or xx or more daily, one of the most effectual remedies (Wa.). *Ergot*, the most effective remedy for enlarged spleen (Da Costa). *Ammonium Iodide*, effective in chronic splenitis, with unguent. hydrarg. iod. rubri externally; also small doses frequently repeated in all splenic derangements from malaria (B.). *Iodine*, locally in chronic forms (B.). [Compare LEUCOCYTHÆMIA.]

Sprains.

Arnica, is very useful; the infusion internally and externally (P.); the tinct. diluted as lotion is very effectual (Wa.). *Aconite*, the liniment to painful sprains often affords speedy relief (Wa). *Turpentine*, the oil as a liniment (P.). *Ammonium Chloride*, in solution, as lotion, or with bread as poultice, to remove discoloration from sprains (W.). *Rhus Toxicodendron*, the tinct. ʒss to Oj of water a good external application to sprains. *Oil of Bay* as stimulating liniment (P.). *Cold Douche*, salt may be added. The force must be regulated by the condition of the tissues (R.). *Rest*, the most essential measure, should be perfect. Warm fomentations, or cold affusion, opiates, and plain diet (D.). A roller bandage with splints, often required to secure rest of the part.

Stains.

Nitrate-of-silver Stains may be removed by washing with Potassium Cyanide ʒijss; Iodine, gr. xv.; Water, ℥iij; or, after moistening the spots, drop on them a few drops of Tinct. Iodine, and wash out with a solution of Sodium Hyposulphite, ʒss–℥j (B.). *Blood-stains*, if on dark-colored materials are best seen by an artificial light. After a few hours they become of a rusty, reddish-brown color, which they maintain for years. The microscope shows the characteristic corpuscles. These stains when on iron are difficult to distinguish from rust; the latter is not soluble in water, while blood is extremely so. Heat applied to the metal will cause the blood to peel off, unless the stain has been exposed long enough to have rust mingled with the blood. A solution of blood in water, heated, forms a coagulum which is soluble in hot caustic potash, the solution thus formed is green by transmitted light, and red by reflected light. Menstrual blood cannot be distinguished from that resulting from a wound (Husband).

Stammering.

Vocal Training. The rhythmical method, the most successful; the chief end in view is to regulate the precipitate, irregular form of respiration. Long continuance necessary, six months, a year, or more, in special institutions (Ros.). The patient must be taught the use of language anew, treated with especial kindness, and never subjected to mockery or punishment. [*See* Potter on Defects of Speech, Lea Prize Essay, Philadelphia, 1882.]

Sterility.

Aurum, cures sterility when dependent on chronic metritis or amenorrhœa or coldness, more certainly than any other remedy. Auri chlor. gr. $\frac{1}{30}$ (B.). *Potassium Iodide*, when due to syphilis (R.). Dilation of os and cervix carefully when sterility depending on obstruction, with dysmenorrhœa (H.). Sterility is frequently associated with uterine displacement (Meadows); less often with atresia. In persons of good health may be caused by an acid discharge from the uterus, which kills the spermatozoa; for this Vichy water internally and per vaginam, and alkaline baths (Charrier). Is due to aspermatism of the husband in more cases than generally believed (Gross). Many cases are due to blocking of the cervical canal with a morbid discharge from the cervical glands, and such may be relieved simply by repeated cleansing thereof with a cotton-wrapped probe or forceps.

Stings and Bites.

Ammonia or *Alkalies*, a weak solution, in stings of insects, to neutralize the formic acid (R.). Ammonia, as nervine stimulant in snake-bites, more useful than brandy or any other stimulant; ♏x–xx of liquor ammoniæ in water or wine, every half-hour or oftener; also externally or hypodermically, 1 part to 2 aquæ into a vein (Wa.). *Carbolic Acid*, a weak solution sponged over the body, to keep off mosquitoes (R.). *Salicylic Acid*, 1 to 19 of Flexible Collodion, locally for bites of insects, allays pain at once, and only in rare cases is the neighboring tissue swollen. *Mercury*. The Bichloride, 1 to 1000 of Flexible Collodion, is equally effective. *Potassium Permanganate*, in strong solution, 1 to 6, locally, is promptly efficient for all reptile-bites and insect-stings. If wound is small, make incision to enlarge it, and insert lint soaked in the solution. If a rattlesnake-bite, inject the solution hypodermically above the wound (Dupon). *Viola Cucullata*, the common violet, is used as an internal remedy in Pennsylvania for rattlesnake bite, and is successful in a remarkable degree. The leaves are eaten, and a poultice of indigo and salt is at the same time applied to the wound. *Arsenic*, 1 part to 5 of black pepper, is the "Tanjore Pill," highly esteemed in India for bites of venomous snakes (Wa.). *Chloride of Lime*, a filtered solution injected into wound from snake-bite, successful in seventeen cases (Binz). *Silver Nitrate*, the sharpened stick applied to every sinuosity of the wound. Excision safer (Wa.). *Sugar*, applied to stings of wasps, said to relieve almost instantly (Wa.). *Ipecacuanha*, as poultice or paste, allays pain and irritation; is regarded by some as almost specific (Wa.). *Stimulants*, in snake-bites, freely; most important. Liquor ammoniæ the best (Wa.); stimulants are indicated in snake-bites, but there is no remedy of any value (Gross). *Sting*, should always be removed if left in the wound; pressing upon it with the barrel of a small key will expose it.

Prescriptions.

℞. Ol. Picis Liquidæ,
Ol. Olivæ,
Ol. Hedeomæ, ... āā ℥j.
Spt. Camphoræ,
Glycerini, ... āā ℥ss.
Ac. Carbolici, ... ʒij.

M. Sig.—Shake well. Lotion against mosquitoes, for fishermen and hunters.

℞. Carbo Vegetab.,. . . . . . ℔j.
Potassii Nitratis, ... ℥ij.
Ac. Carbolici, ... ʒjss.
Persian Insect Powder, . . ℥viij.
Mucil. Tragacanth., q. s.

To make fumigating pastilles for use against mosquitoes.

Stomatitis.

Potassium Chlorate, locally and internally. Large doses necessary (gr. x–xx); in ulcerative stomatitis of nursing women, and aphthæ; of no value in mercurial form (R.). *Hydrastis*, fluid extract locally in mercurial and aphthous stomatitis (B.). *Carbolic Acid*, concentrated, in glycerin, carefully, as a mild caustic in aphthous stomatitis (Wa.). *Alcohol*, Brandy-and-water an excellent lotion (B.). *Acids, Mineral*, pure Hydrochloric on pine wood to ulcers (B.). *Eucalyptus*, a decoction of the leaves an efficient local application (B.). *Glycerin of Tannin*, in ulcerative stomatitis (R.). *Copper Sulphate*, solution painted over edges of gums in ulcerative stomatitis; generally dry alum better (R.). *Alum*, in ulcerative, applied dry with the finger several times a day, especially when disease affects one-half the jaw (R.). *Salicylic Acid*, to ease the pain of catarrhal stomatitis. One part (dissolved in sufficient alcohol) to 250 parts of water (R.). [Compare APHTHÆ, CANCRUM ORIS.]

Strabismus.

Belladonna, for the strabismus of encephalitis (P.). *Atropine*, with strong convex glasses, to suspend accommodation for months, or years if necessary; may cure convergent strabismus in its earlier stages, in children of 3 years of age or younger (Green in C.). *Operation*, required in most cases, especially when of congenital origin. *Glasses*, properly adjusted to sight, serve to strengthen the weak muscles in children, and to pull the axes right (Gould).

Strophulus.

Glycerin, locally, combined with bismuth, and digitalis (Wa.). *Lancing* the gums is proper (H.).

Sunstroke.

Water. Cold affusion when patient is stricken down unconscious (R.); absolute rest and quiet, free air, loose clothes. *Potassium Bromide*, in cold water enemata. *Stimulants* when frequent and feeble pulse. *Chloroform*, if convulsions. *Leeching*, in stage of reaction (Wa.). *Veratrum Viride*, and *Gelsemium*, as sedatives, instead of stimulants, when pulse full and strong (Ely).

Suppuration.

Sulphides, small doses (gr. ss–j), frequently repeated, are very serviceable (B.). *Calcium Sulphide*, when ichor secreted instead of pus; also arrests suppuration, or if that is impossible will hasten maturation (R.). *Quinine*, recommended in profuse suppuration (R.); to sustain system when suppuration prolonged (B.). *Sarsaparilla*, is very useful (P.). *Phosphates*, Parrish's to repair waste from suppuration (B.). *Iodide of Manganese and Iron*, the syrup in cachectic states resulting from suppuration (B.). *Alcohol*, an excellent antiseptic dressing (B.). [Compare ABSCESS, BOILS, CARBUNCLE, PYÆMIA.]

Surgical Fever.

Aconite, quickly and repeatedly in early stages, during chill or soon after, the safest treatment (P.). *Salicylic Acid*, or Salicylate of Sodium, especially useful as an anti-pyretic (B.). *Chloral*, gr. xx-xxx of the hydrate every 2 hours, no better treatment (Wa).

Sycosis.

Nitric Acid, ℥j to Oj aquæ, as wash, used frequently (R.). *Boracic Acid*, ʒjss finely powdered and incorporated with ℥j of vaseline, is found most useful (Wa.) *Mercury*, citrine ointment has been extensively employed, also the oleate of mercury, both with good results (Wa.). *Arsenic*, the oleate is found beneficial, and the *Solution of Arsenic* and *Mercury*, Donovan's solution, internally is highly useful. *Mercurial Ointments* are extensively employed (Wa.). *Sodium Sulphite*, ʒj; glycerini, ℥j; aquæ, ʒiij; locally, when of parasitic origin (Wa.). [Compare CONDYLOMATA, MENTAGRA].

Syncope.

Cinnamon, the oil, as a powerful stimulant, sometimes employed (P.). *Alcohol*, as brandy, or wine, when heart suddenly enfeebled from fright, etc. (R.). *Amyl Nitrite*, in some forms, especially in anæmic subjects, its inhalation speedily restores consciousness (O'Neill). *Atropine*, gr. $\frac{1}{100}$–$\frac{1}{40}$ subcutaneously, the best means of resuscitation, there being no medicine which so promptly exalts the force and rapidity of the heart's action (Harley). *Ammonia*, internally, or breathed into the air-passages (R.); the carbonate as "smelling salts" (Wa.). *Lavandula*, the compound tincture (Wa.). *Chloroform*, internally, for hysterical people, as cardiac stimulant (R.). *Position*, leaning forward, with head as low as possible (R.). *Galvanization* of pneumogastric (B.). *Cold Water* over the face, and volatile substances to the nose (R.). Cold affusion always (Wa.).

Synovitis.

Potassium Iodide, with iron and quinine, in syphilitic patients with constitution broken down (D.). *Iodide*, in chronic, painted around joint; the solution injected into white swelling (R.). *Quinine*, and free stimulation in all cases of pyæmic synovitis, such as ocurs in acute rheumatism of gonorrhœal causation, occasionally in typhoid fever, and may from a trifling injury in strumous subjects. *Mercury*, and *Morphine*, the oleate locally (R.); an elegant and efficient application (B.); in syphilitic cases Mercury internally when acute symptoms have subsided (D.). *Aconite*, for pains in inflamed joints (R.). *Silver Nitrate*, locally, to vesication almost, often very beneficial (Wa.). *Carbolic Acid*, injected into joint (B.). *Alcohol*, and water, equal parts, an excellent evaporating lotion (B.). *Blisters*, a flying blister every night in chronic synovitis (R.). *Cod-liver Oil*, in strumous cases (B.). *Surgical Treatment.* Splints to keep limb motionless in all cases arising from injury; during acute stage splint should be fastened at some distance above and below joint, and not touch joint itself. Straight position, leeches *to* joint, or cupping *near* it; ice, evaporating lotions or hot fomentations. Blisters inapplicable until acute stage subsides (D.). If suppuration occurs the joint must be dealt with as any other abscess cavity (MacCormac). *Heat*, as fomentations or poultices in the acute form. *Bandage*, or *Strapping*, to cause absorption of fluid; bandages (cold water) after alternate bathing with hot and cold water, in chronic. [Compare COXALGIA, JOINT AFFECTIONS.]

Syphilis.

Mercury, the mainstay in earlier and later stages; the protiodide in pills of gr. ⅛ each, one after each meal increased by one every third day, until teeth sore or bowels disordered, then drop two pills from each dose (Keyes). The best remedy for primary and secondary, not so in tertiary, or in chancroid; small doses are best, to stop short of pytalism (B.) Blackwash, calomel or citrine oint. very useful in mucous sores, tubercles, and elevated indurations; in syphilitic ozæna, psoriasis, rashes, condylomata, etc., the bichloride, gr. ij–v in ℥j alcoholis, painted over syphilitic mouth lesions daily (Keyes). The serious secondary and tertiary symptoms can be produced both by syphilis and by mercury; the phenomena produced by mercury are singularly similar to those which result from syphilis. Mercury believed to be a true vital antidote against the virus (R.); used for at least two years can eradicate it (Keyes). *Nitric Acid*, in secondary forms (R.); holds a high place as an internal remedy (Wa.); when sponginess of gums excessive, ʒiv–℥ij aq., teasp. 4 times daily; also use locally (St.); as cautery for the initial lesion, the fuming acid, if done at all, should be early and thoroughly, followed by Black Wash locally on lint (Bulkley). *Potassium Iodide*, approached by no remedy in constitutional syphilis; also for mercurial cachexia, syphiloma of nervous system, and many disorders of syphilitic origin. Will certainly arrest ulceration of nares, palate, etc., if given in large doses, gr. xx–ʒj every 4 hours (R.); is of little value in early stages; in later should be combined with mercury (St.). *Iodine*, as gargle for ptyalism; the tincture applied to syphilitic sores of the throat (R.); or ℥ss of tincture to ℥iv syr. fusci; a teaspoonful well diluted ter die, after meals, when Pot. Iod. cannot be borne (St.). *Iodoform*, powdered and dusted over ulcers (B.). *Aurum*, after mercury and the iodides, in old cases of secondary and tertiary, ulceration of the throat, ozæna, phthisis, syphilitic bone-diseases (B.); its beneficial action incontestable (Tr.). *Stillingia*, with nitric acid in chronic cases of broken-down constitutions from mercury and iodides; has been most satisfactory (B.). *Cascara Amarga*, is said to have remarkable powers as an alterative in syphilis, but to be useless if alcohol and tobacco are used at the same time. *Sanguinaria*, in secondary and tertiary, is held to be very useful (P.). *Sarsaparilla*, a most important remedy, as adjunct to, and in abuse of mercury (P.); with guaiac and mezereon, as the compound decoction of sarsaparilla, in tertiary form (B.). See *Guaiac*, below. *Belladonna*, with mercurial ointment, for secondary ulcerations of rectum (P.); tincture ʒiv ad ℥ij aquæ, a teaspoonful 4 times a day in water, instead of mercurials (St.) *Iron*, the iodide in constitutional syphilis, to promote constructive metamorphosis (B.); where anæmia exists (R.); the potassio-tartrate, gr. xv–xx, every 4 hours, especially in the gangrenous form (Otis). *Guaiacum*, in tertiary only; or as vehicle for potassium iodide and mercuric chloride (B.). *Carbolic* and *Salicylic Acids*, locally to syphilitic abscesses, carbolic best (B.). *Zinc Chloride, Iodide, Nitrate*, locally to syphilitic ulcers (R.). *Denutrition*. The Arabic "hunger-cure" efficient, but unpopular (B.). *Turkish Baths*, or wet packing, ameliorate and aid cure of constitutional syphilis (B.) *Hygiene*, is of the greatest importance in syphilis (Bulkley). *Cod-liver Oil*, remarkably improves condition resulting from prolonged use of mercury and iodides, the syphilodermata, and squamæ; internally and by inunction (R.). [Compare CHANCRE, CONDYLOMATA, ULCERS, PTYALISM.]

Prescriptions.

℞. Massæ Hydrargyri, . . . gr. ij.
Ferri Sulph. Exsiccat., . gr. j.
Extr. Opii Aquosi, . . . gr. ¼.
In pill, thrice daily. (*Otis.*)

℞. Hydrargyri Bichloridi,
Ammonii Chloridi, . . āā gr. iij.
Tinct. Cinchonæ Comp., . ℥ iij.
Aquæ, ... ℥ iij.
M. Sig.—A teasp. thrice daily. Each ʒ contains gr. $\frac{1}{18}$ of corrosive sublimate. (*Bumstead.*)

℞. Potassii Iodidi, ... ʒ ij.
Ammonii Carb., ... ʒ ss.
Tinct. Cinchonæ Comp., ℥ iv.
Glycerini, ... ℥ j.
Syr. Aurantii Cort., . . ℥ jss.
M. Sig.—A teasp. in plenty of water after each meal. (*Keyes.*)

℞. Hydrarg. Chlor. Mitis., . ʒ ij.
Lycopodii, ... ʒ ij.
M. Sig.—Use as snuff thrice daily, in lesions of the nostrils. (*Diday.*)

℞. Hydrarg. Chlor. Corr., . gr. viij.
Potassii Iodidi, ... ʒ viij.
Syr. Sarsaparillæ Co., . . ℥ viij.
M. Sig.—"*The Three Eights*,"—Dose, a teasp. thrice daily.

℞. Hydrarg. Iodidi Rubri, . gr. ij.
Ammonii Carbonatis, . . gr. xx.
Potassii Iodidi, ... ʒ iij.
Tinct. Gent. Comp., . *ad* ℥ iv.
M. Sig.—A teasp. in water after each meal. (*Fox, for the Mixed Treatment.*)

℞. Hydrarg. Iodidi Rubri, . gr. iij.
Potassii Iodidi, ... ʒ iij–vj.
Tinct. Aurantii Cort.,
Syrup. Aurantii Cort., āā ℥ j.
Aquæ, ... ℥ viij.
M. Sig.—A teasp. thrice daily after meals. (*Otis, for the same.*)

℞. Hydrarg. Bichloridi, . . gr. iv.
Tinct. Benzoini, ... ℥ ss.
Aquæ Cologniensis, . . ℥ j.
Aquæ Rosæ, ... ℥ ivss.
M. Sig.—Apply locally with sponge to skin for 20 minutes. For squamous syphilides. (*S. W. Gross.*)

Tabes Mesenterica.

Lime, the chloride and phosphate (R.); the chloride is a powerful remedy if kept up (Wa.). [See SCROFULOSIS.] *Iodine*, by inunction with cod-liver oil (El.); locally over glands; carefully, lest inflammation be increased (R.). Potassium Iodide in small repeated doses, valuable (Wa.). *Mercury*. Corrosive Sublimate with bark (gr. j ad ʒij tinct. cinchonæ) after meals, for chronic glandular disease (D.) *Phosphates*, for malnutrition (B.). The hypophosphites act slowly but surely (Wa.). *Iron* and *Iodine*, in various forms are the most useful remedies in scrofulosis, but medicine is powerless without strict hygienic measures (A.); the Iodide or Phosphate of Iron and Cod-liver oil, as for tubercle elsewhere (El.). *Fel Bovinum*, is worthy of trial, though at best a palliative (Wa.). *Cod-liver Oil*, is the best remedy to promote assimilation (B.); of great service (R.). *Chaulmugra Oil*, is of benefit, used by inunction (Wa.). *Aliment.* Raw meat, cream, chocolate, and cocoa, are valuable nutriments in these cases (El.). Peptonized foods are of inestimable value (Wa.). *Hygiene.* Change of air, especially to sea-air, is all-important (El.). [Compare SCROFULOSIS.]

Taste, Disordered.

Mercury or *Podophyllin*, as purgative for cankery taste unconnected with alcoholism; or half-glass of pure cold water daily half an hour before breakfast (R.).

Teeth.

Potassium Iodide, in doses of gr. x, thrice daily, often cures looseness of teeth from periostitis of alveolar processes (Wa.). *Iodine*, tincture painted over gums close to the teeth when the gums begin to recede; also to remove tartar (R.). *Cinchona*, powdered bark often used in tooth-powders (R.). *Collodion*, on cotton, as stopping for carious teeth (P.). *Liquor Sodæ Chloratæ*, ʒvj ad ℥xij aquæ, a highly useful application in fetid discharges from carious teeth (Wa.). [Compare DENTITION, ODONTALGIA.]

Testicles.

Mercury, the ointment, locally in indurations and enlargements of testes (Wa.). Corrosive Sublimate, with cinchona or sarsaparilla in sarcocele (D.). *Water*, cold applications in neuralgia of testes, with tonics and neuralgic treatment generally (D.). *Suspensory Bandage*, with rest, in many affections of the testes (D.). [Compare HYDROCELE, ORCHITIS, VARICOCELE.].

Tetanus.

Strychnine, of decided service (P.); cured 8 cases of traumatic form, in doses of gr. $\frac{1}{16}$ to $\frac{1}{8}$ (S.); is conclusively curative, especially in chronic and spontaneous, rather than in traumatic. Strychninæ Sulphat., gr. $\frac{1}{60}$ to $\frac{1}{30}$ (B.). *Aconite*, has benefited many cases (P.); its success warrants further trial (W.). *Belladonna*, successfully used in many cases; the extract, internally, and locally to wound (Wa.); gr. $\frac{1}{125}$ atropine injected into muscle (B.); bleeding, vapor-baths, and large doses of belladonna have cured tetanus (Tr.). *Nicotine*, by rectum or hypodermically, appears to be useful in many cases (R.); much evidence for it as the best remedy (P.); effective but dangerous (B.). Physostigma better (Wa.). *Potassium Bromide*, not less than ℥ss during the day, with chloral at night as a hypnotic; out of 21 cases but 3 died. Its physiological action indicates it to be the best remedy known (W.). *Chloral*, in large doses (gr. xx) no remedy more effectual (B.); has sometimes cured (R.); best used in combination with potassium bromide (W.). *Gelsemium*, cured several cases (P.). *Hyoscyamine*, gr. $\frac{1}{32}$ gradually up to gr. $\frac{1}{15}$, ameliorates (B.). *Cocaine.* A mixed solution of Cocaine and Morphine, of each 5 per cent., 3 syringesful hypodermically, immediately relieved and finally cured a bad case of idiopathic tetanus unrelieved for 3 days by chloral, morphine, etc. (Lopez). *Physostigma*, has been used with excellent results (P.); the fluid extract by mouth if possible, at very beginning, and must be pushed until just short of arresting breathing (B.); evidence is discrepant (W.). *Apomorphine*, may prove antagonistic (P.). *Curare*, hypodermically, has much evidence for its power (P.). *Cannabis Indica*, used with marked success in traumatic form (P.). Difficult to obtain an active extract (W.). *Anæsthetics. Ether*, to relieve pain (B.). *Chloroform*, in small and frequently repeated doses, also by friction, has been useful in many instances (Wa.). *Amyl Nitrite*, used in 3 cases with marked benefit as spinal sedative (W.); has been used with success (R.).

Morphine, hypodermically, deeply into tetanized muscles (B.); of no value (Wa.). *Conium*, is indicated, but has not been successful (B.). *Water*. Warm baths, and cold, or ice, afford only temporary amelioration (B.). *Spinal Ice Bag*, extremely useful (R.). *Division* or stretching of any nerve-trunk connecting wound with spinal cord. [Compare SPASMS.]

Thirst.

Acid Drinks, promote secretion of saliva in fevers (R.). *Tepid Drinks*, are useful in the thirst of diabetes (R.). *Ice*, sucked, allays thirst (R.).

Throat, Sore.

Aconite, when temperature high, half-drop doses of tincture, every ¼ hour for 2 hours, then every hour, will almost certainly prove efficacious (R.); valuable in ordinary sore throat (P.). *Belladonna*, is very admirably adapted to the treatment of ordinary sore throat. When much fever, combine with Aconite (R., P.). [See CATARRH, ACUTE.] *Mercury*, in acute tonsillitis, which see (R.). *Nitre*, dissolved in mouth, to abort a sore throat (Wa.). *Tannic Acid*, as powder, gargle, spray (P.). *Glycerin of Tannin*, after acute inflammation; in ulceration of aphthous sore throat daily when tendency to catarrh (R.). *Ipecacuanha*, the wine as spray, in non-inflammatory sore throats and hoarseness from congestion of vocal cords (R.). *Capsicum*, ʒj of tincture to O½ aquæ as gargle, in some sore and malignant sore throats (R., P.). *Potassium Chlorate*, in grain doses every half-hour (A. A. Smith). *Alum*, dry, or in solution (R.). *Myrrh*, as gargle in ulcerated sore throat (P.). *Cimicifuga*, in simple (R., P.), and malignant forms when mucous membrane dry and spotted with inspissated mucus (R.). *Arsenic*, in medicinal doses, in sloughing of throat or malignant sores (R.). *Iodine*, tincture, locally to sores, whether syphilitic or not (R.). *Rhus Glabra*, a very efficient gargle, a decoction, ℥j—ad Oj, boiled to O¾, with Potassium Chlorate, ℥ss (W.). *Nitric Acid*, undiluted to sloughs (R.). *Silver Nitrate*, locally, in early stage of inflammation may cut it short (R.). *Sulphurous Acid*, by inhalation, spray, or fumigations for malignant sore throat, scarlatinal or otherwise (R.). *Water*, cold compress nightly, to harden the throat when tendency to catarrh (R.). *Ice*, constantly sucked (R.). [Compare TONSILLITIS, PHARYNGITIS, and formulæ for Gargles, on page 460.]

Prescriptions.

℞. Hydrarg. Bichlor., ... gr. iv.
Alcoholis, ... ℥ ij.
Solve, et adde—
Decocti Cinchonæ,
Mellis Rosæ,
Tinct. Myrrhæ, ... āā ℥ ij.
M. ft. gargarysma. Gargle, to be diluted if too severe. For ulcerated forms of syphilitic sore throat. (*Sir Chas. Bell.*)

℞. Tinct. Guaiaci Ammon.,
Liq. Potassæ, ... āā ʒ iij.
Tinct. Opii, ... ℥ ij.
Aq. Cinnamomi, . . . *ad* ℥ viij.
M. ft. gargarysma. Sig.—To be used every hour, as a gargle, in clergyman's sore throat. (*Garner.*)

Tic Douloureux.

Arsenic, cures, influences nutrition (B.). *Phosphorus*, useful; gr. $\frac{1}{100}$ to $\frac{1}{12}$ every 3 hours (R.). *Belladonna, Aconite, Spigelia, Iodides, Morphine, Cimicifuga, Gelsemium, Turpentine, Galvanism* (B.). [See under NEURALGIA.] *Croton-Chloral*, palliative in doses of gr. v every ½ hour till gr. xxx taken (W.). *Salicylates*, in large doses, cured a case of 12 years' standing. *Stramonium*, gr. ¼ to ½ every 3 or 4 hours for 4 or 5 doses, often affords decided relief; stop if narcotic symptoms appear (P.). *Laurocerasus*, sometimes removes (P.). [Compare HEMICRANIA, NEURALGIA.]

Tinea Circinata—(Ringworm of the Body).

Mercury, the bichloride, 1 part to 250 of water, as parasiticide solution, after depilation (A.). [See also T. TONSURANS.] *Carbolic Acid*, a very efficient application; ʒj ad ℥j glycerini, locally (B.); or equal parts of Carbolic Acid and Glycerin, is a very efficient application. *Sulphurous Acid*, better and safer (A.); must be fresh to be of use (Bulkley). *Cocculus Indicus*, the decoction locally, after washing the skin well (P.). *Oil of Cade*, the best depilatory known (A.). *Arsenic* will not cure, but may do service as a nerve tonic or an improver of nutrition, in connection with other remedies (Bulkley). *Cuprum Acetate*, gr. x ad ℥j adipis, as ointment, is very effective (B.). *Sodium Hyposulphite*, ℥j ad ℥xij aquæ, locally, used by Dr. Tilbury Fox. *Mercury*. Calomel ointment (ʒj ad ℥j) useful (B.). Hydrarg. nitrate as strong citrine ointment, rubbed in twice daily, often effectual. Hydrarg. oxid. rubrum, as ointment, often cures ringworm on body or limbs, when other remedies fail (Wa.). *Cocculus*, ointment from kernels, or decoction (P.). *Iodine*, liniment once applied (R.); with oil of tar (1 to 4 of latter) locally, is excellent (Wa.). *Kamala*, used locally by the Hindoos (P.). *Tar Ointment*, is used with good effect (P.). *Acetic Acid*, applied to cut it short (R.). *Cod-liver Oil*, a powerful auxiliary in weakly and cachectic subjects (Wa.) *Diet and Hygiene* are important. Food should be nutritive and abundant, especially animal fats. Daily baths, out-of-door exercise. *Fungus*, is the Tricophyton tonsurans (A.).

Tinea Decalvans—(Alopecia Areata).

Parasiticide Lotions, must be used after epilation, and washing of head daily with soft or black soap. Stimulants (as *Collodium* with *Ether Cantharidalis*, equal parts), after fungus is destroyed (A.). *Tonics* are necessary, especially to the nervous system (Bulkley). *Fungus*—Microsporon Audouini (A.); but I have never seen it, though having made repeated and thorough searches (Bulkley).

Tinea Favosa—(Favus).

Mercury. Hydrarg. chlor. corr. gr. xx; cerat. simplicis ℥j; efficient when used early (B.); or gr. ij ad ℥j aquæ after each epilation (R.). *Sulphurous Acid*, Sulphites, and Hyposulphites, as parasiticides. ℞. Sodii hyposulphitis ℥iij; ac. sulphurosi dil. ℥ss; aquæ q. s. ad ℥xvj (Startin). *Carbolic Acid*, Cod-liver oil, locally (B.). *Oils*, to facilitate removal of scabs; head to be greased freely to prevent spreading. A mild mercurial pomade, or quinine in glycerin best (R.) *Cleanliness*, and free use of soap and water, is a *sine qua non* and in some cases of tinea may be alone sufficient to produce curative results. Isolation of person, and brushes, towels, etc., necessary to prevent infection. *Fungus*—Achorion Schönleinii (A.); a very rare affection in this country (Bulkley).

Tinea Tonsurans—(Ringworm of the Scalp).

Mercury. Hydrarg. chlor. corr. gr. xx ad ℥j unguent. simplicis, an effective application when used early (B.); must be employed with great caution. *Sulphurous Acid*, with glycerin (R.). *Carbolic Acid*, ʒj ad ℥j glycerini (B.). *Viola Tricolor*, the leaves are employed in Italy for tinea capitis (P.). *Cocculus Indicus* (P.). [See T. CIRCINATA.] *Potassium Sulpho-cyanide*, ℥ss with ℥j glycerini, ℥viij aquæ, as lotion (R.). *Iodine*, ʒij ad ℥j of oil of wood tar (R.). *Arsenic Iodide*, the best constitutional remedy; gr. $\frac{1}{10}$ increased to gr. ¼ for an adult: gr. $\frac{1}{20}$ to $\frac{1}{15}$ for children, with alkaline lotions locally (Wa.). *Lead*, in chronic porrigo capitis; the ointment of the iodide (B.); will complete a cure after alkaline lotions (Wa.). *Fungus*—Trichophyton tonsurans (A.). [Compare TINEA CIRCINATA.]

Tongue.

Potassium Chlorate, gr. v internally and ʒj–ij ad Oj aquæ locally; in ulcers of tongue (Wa.); also in rawness of tongue in advanced phthisis. *Potassium Iodide*, in syphilitic ulcers of tongue (D.); and in hypertrophy (A.). *Potassium Bromide*, ʒj to ℥vj water as wash, may soothe morbid sensibility of the tongue (A.). *Borax*, gr. xl; glycerini ℥j; aquæ ℥iv. As application in cracked tongue (Wa.) *Iodine*, the tincture locally by a fine brush, or as a gargle with 7 or 10 parts of water and some honey, has given uniform success in malignant ulcers (Wa.). *Conium*, thought to act specifically with benefit in ulcer of the tongue (Wa.). *Cinnamon*, the oil as a powerful stimulant in paralysis of tongue (P.). *Ginger*, *Cochlearia*, *Pyrethrum*, as gargle; *Cloves*, *Mezereon*, *Pepper*, as masticatories, in paralysis (P.). *Frænum*, should be divided in tongue-tie; use blunt-pointed scissors, directing the points down, close to the jaw, so as to avoid wounding the ranine artery (D.); better to cut as little as possible, and that directly backwards, as the artery of the frænum may proceed from the sublingual (Holmes). [Compare GLOSSITIS, RANULA.]

Tonsillitis.

Aconite, when accompanied by fever and elevated arterial tension, relieves greatly; gtt. ss–j every ½-hour or hour (B.); every ¼-hour for 2 hours, then every hour, will almost certainly prove efficacious (R.). *Belladonna*, of surprising efficacy; gtt. v of tinct. every 3 hours in ℥ss aquæ (P.). *Mercury*, often speedily removes. Calomel, gr. $\frac{1}{20}$, or hydr. cum creta, gr. $\frac{1}{5}$ every 2 hours; not in chronic forms (B.); gr. $\frac{1}{8}$ of gray powder every hour when tonsils almost meet, has marked effect. The oleate of mercury and morphine in obstinate and painful tonsillitis (R.). *Silver Nitrate*, locally may abort, if applied early (R.); the solid stick, once thoroughly applied in first stage, rarely fails to prevent suppuration (Howard). *Guaiac*, disagreeable, but very effective (P.); ℥ss doses of tincture every 4 hours has remarkable power; should be given in emulsion with mucilage or yolk of an egg (B.); makes an excellent gargle, see page 460 for formula. Tinctura Guaiaci and Glycerin, equal parts, in teaspoonful doses every hour or two, gives excellent results in acute tonsillitis. *Opium*, gr. v–x of Dover's powder at bedtime, is in many cases curative (Shœmaker). *Cocaine*, in 10 per cent. solution, locally, at intervals of 15 minutes, removes pain at once and promotes resolution. A very efficient application in 5 or 10 per cent. solution, but causes temporary paralysis of palatal muscles, so that liquids regurgitate through nose (Bœckel). *Alum*, dry or in solution (R.). *Potassium Iodide*, locally (gr. j–v–℥), is useful (B.). *Potassium Chlorate*, in grain doses every half-hour, very efficient (A. A. Smith). *Capsicum*, the dilute tincture in a gargle, or in powder applied on a swab, is useful in severe tonsillitis, especially in that accompanying scarlatina (W.). *Quinine*, gr. x–xv will sometimes abort (B.). *Tannic Acid*, is useful (P.); as gargle, see page 460. *Ice* and wet pack, extremely grateful (B.). *Cold Wet Compress*, nightly, useful (R.). *Incision*, of the tonsils gives immediate and marked relief in all cases, especially those which are not amenable to ordinary treatment. *Sodium Bicarbonate*, locally by wetted finger to surface of tonsils every five minutes for ½-hour, then every hour during the same day, will prevent necessity for lancing (Lyon Medical).

Prescription.

℞.	Tinct. Aconiti, ...	ʒss.
	Tinct. Guaiaci, ...	℥ss.
	Syr. Zingiberis, ...	℥ss.
	Syr. Simplicis, ...	℥ij.

M. Sig.—ʒss–ij, every 2 hours according to age. In severe cases, with high fever, bounding pulse, severe headache. (*Shœmaker.*)

Tonsils, Enlarged.

Ammonium Iodide, ʒss in ℥j glycerin, applied every night by a camel's hair brush, very efficacious (Wa.). *Baryta Iodide*, in hypertrophy of the tonsils, effects a rapid diminution in their size, even when indurated for years (Hale). *Liquor Ferri Perchloridi*, ʒj–ij ad ℥j, painted over tonsils twice daily, is one of the most effective astringents (Mackenzie). *Aluminium Sulphate*, a saturated solution applied daily by a brush, as a mild caustic (W.). *Ergot* or *Ergotine*, injections into tonsils (Meigs). *Zinc Chloride* as caustic, the most efficient and least annoying method; a saturated solution applied on a wire cotton-holder to each crypt and held there a few seconds; a few applications will shrink the gland in a week. *Tannin*, a strong solution touched daily to tonsils (H.); a few sips of a saturated solution (℥ss in ℥iij aquæ) slowly sipped, will stop bleeding, if profuse (A.); gr. xx to ℥j aquæ, hypodermically, as in nasal polypus. *Silver Nitrate*, touched daily to tonsils, will sometimes make them shrink (H.). *Catechu*, a serviceable astringent gargle; the infusion ℥vj with tincture of kino ʒij, as gargle (Wa.). *Oxgall*, locally, is praised (Wa.); is of real utility (W.). *Citric Acid*, rubbed daily to tonsils, is highly praised in enlargement thereof. *Excision* of a part of tonsil (H.). Mackenzie's double guillotine removes both tonsils at once. Hemorrhage seldom happens; ice will generally check it (A.). Surgical measures should receive unprejudiced consideration, as the medical treatment is tedious in the extreme.

Tonsils, Ulcerated.

Coptis, the infusion as a gargle (B.). *Sulphurous Acid*, dilute, locally by spray, or a solution of sulphite of sodium in water (ʒj–℥j) (B.). *Potassium Iodide*, will arrest syphilitic ulcerations at once (B.). *Carbolic Acid*, a 5 per cent. wash with tincture of myrrh, a good application by sponge to throat (Wa.). *Cimicifuga*, a decoction of the root as a gargle (Wa.).

Torticollis.

Cimicifuga, has curative efficacy (P.). *Capsicum*, a handful of the crushed pods infused for 36 hours in a pint of hot or cold water, and applied on lint covered with gutta-percha (R.) gives striking results (Wa.). *Opium*, as liniment, with friction, or an opium plaster, is often serviceable (Wa.). *Galvanization* of affected muscles, and faradization of opposed ones quickly relieves (B.).

Trismus.

Aconite (A.), *Atropine* (R.), hypodermically. *Cannabis Indica*, has been used successfully in trismus neonatorum (B.). *Opium*, ♏⅛ doses of laudanum, with castor oil and warm bath, in trismus infantum. Treatment of any kind seldom effectual (D.), never (El.). *Ether*, *Chloral*, *Gelsemium*, *Physostigma* (B.). [See TETANUS.]

Tumors.

Mercuric Bromide, in ½ gr. doses, has benefited abdominal tumors (Wa.). *Chloroform*, in diagnosis of abdominal tumors when deep-seated, and when walls of the belly are hard and rigid; also in phantom tumors (R.). *Pepsin*, hypodermically, to dissolve. *Hyoscyamus*, the leaves as cataplasm or fomentations to painful tumors, afford great relief (Wa.). *Electrolysis*, employed with more or less benefit in sebaceous, lipoma, bronchocele, enlarged glands, etc. (Wa.). *Iron*, the liquor ferri perchloridi is found to be valuable as a curative application to fungous or hemorrhoidal tumors (Wa.). *Galbanum*, as plaster to indolent, non-malignant tumors, to diminish, or cause their absorption (Wa.). [Compare CANCER, CYSTS, GLANDULAR ENLARGEMENT, GOITRE, POLYPUS, UTERINE TUMORS, WEN.]

Tympanites.

Turpentine, often greatly benefits (P., Wa.); ʒj every 6 hours in tympanites of typhoid, with prostration but without diarrhœa (R.). *Asafœtida*, in hysterical, internally or as enema, beneficial (P.); also in that of fever (Wa.). *Capsi-*

cum, gr. ss–ij, every 4 hours (P.). *Cocculus Indicus*, a few doses of tincture will often succeed in the tympanites of peritonitis and enteric fever (P.). *Ginger*, with drastic purgatives (P.). *Aspiration*, in extreme cases and as a last resort. [Compare TYPHOID FEVER, PERITONITIS.].

Typhlitis.

Opium, of undoubted curative power (B.). *Purgatives*, are inadmissible; Epsom salts may be used, but no drastics (B.). *Leeches*, should never be omitted when tenderness and fever begin (B.). *Ice-bag*, over the swelling (B.).

Typhoid Fever.

Baptisia, is very useful in the early stage (W.). *Mineral Acids*, are very useful generally, especially HCl acid (Wa.). *Nitro-hydrochloric Acid*, is to be preferred over all other plans of treatment, 20-drop doses in simple elixir; Sulphuric is useful for intestinal hemorrhage (Da Costa). *Sulphurous Acid*, is highly praised by Dewar, and has real antidotal power; ♏ijss–♏xx every 4 hours according to age, continued for a week or ten days, until the patient's complaints show him to be saturated. If diarrhœa be present, add Sulphuric Acid and Opium (Wilks). [See formulæ below.] *Opium*, small doses at night for insomnia with delirium; also as injection for the diarrhœa (R.); in one case, when vital powers seemed hopelessly depressed, gr. ½ opii caused improvement (Wa.); for spreading tenderness, (peritonitis), give 10-minim doses of the deodorized tincture, also gr. j in suppository every four hours (Da C.). *Veratrum Viride*, to reduce temperature (R.); delirium ferox (B.); strongly recommended (Wa.); its efficacy difficult to believe (S.). *Potassium Bromide*, is as much a specific for typhoid fever as quinine sulphate is for ague, aborting the fever in 8 or 10 days (Hawkins). *Carbolic Acid*, ʒj, with Tincture of Iodine ʒij, of which ♏j–iij every 2 or 3 hours is a very good plan of treatment (Da C.). *Turpentine*, invaluable, when hemorrhage and extreme tympanites (P., R.); ♏xxx–lx in starch mucilage, ♏x of liquor opii (P.); ♏v–x frequently for hemorrhage or ♏x every 2 hours in advanced stage, with dry tongue (R.); coma, stupor, etc.; often arouses the vital powers (Wa.); ♏vij with gr. $\frac{1}{48}$ of morphine; of especial value when marked fever and congested lungs, as well as for the tympany (Da C.). *Chloral*, is the best drug for nervous symptoms, but must not be used when the heart is weak (Da C.). *Arnica*, highly extolled: its "picture" shows definite powers in this disease (P.): small doses in asthenic conditions (B.); when vital powers greatly depressed (Wa.). *Belladonna*, contracted pupils; low, muttering delirium (B.); thought to counteract the poison of typhoid (Wa.). *Mercury*, corrosive sublimate gr. $\frac{1}{100}$ every 2 or 3 hours for the diarrhœa. Calomel in small doses at onset (R.); gr. x in one dose the first day, gr. iij per diem for 3 or 4 days, the German "specific treatment" (B.). *Bismuth*, gr. x–xxv of the subnitrate with gr. ½–j of Opium every 3 hours for the severe diarrhœa (Da C.). *Ergotin*, gr. ij–vj hypodermically, or ʒj of the fluid extract of Ergot, for intestinal hemorrhage (Da C.). *Tartar Emetic*, with opium, when wakefulness and delirium. Minute doses (gr. $\frac{1}{16}$), frequently, are of great service (B.). *Digitalis*, of value in many cases as a sustainer of heart power, but may be dangerous in the later stages (Anstie, Murrell). *Quinine*, may have efficacy in typho-malarial; is less effective as the typhoid element predominates; useless in purely continued fevers (B.); is justly abandoned, but may be used to maintain the circulation, in tonic doses, gr. vj–x in the 24 hours (Da C.). *Antipyrine*, for hyperpyrexia, also *Thymol*, gr. ss–ij in solution (Da Costa). *Digitalis*, used by the Germans when there is no cardiac weakness. Gr. xj–xxij, as antipyretic, over a period of 36 hours (P.). *Serpentaria*, useful when much depression exists. Cautiously, if intestines at all irritable (B.). *Hydrastine*, when copious sweats (P.). *Lead Acetate*, with opium for the purging (R.). Also *Alum* (R.). *Ergot*, for intestinal hemorrhage, hypodermically, if symptoms urgent (R.). *Sodium Chloride*, should not be withdrawn from the food (Wa.). *Aromatic Spirit of Ammonia*, for great accumulation of mucus in the throat (Da C.). *Copper Sulphate*, gr. $\frac{1}{12}$, with Opium, gr. $\frac{1}{3}$, for the diarrhœa (Da C.). *Strychnine*, is the remedy for the functional palsies (Da C.). *Purgatives*, only the very mildest, and they with the greatest caution (Wa.). *Water*, a most important agent. Cold baths when temperature above 102° (B.); in mild cases, cold wet compresses or wet sheets, or washing with cold water; in severe cases, affusion, shower, or general cold bath, 50° to 55° Fah., or better 95° cooled gradually to 60° (R.). *Medicine* will never abort a case of true typhoid; its natural duration is from 28 to 30 days (Sir William Jenner). *Stimulants*, freely, with quinine, for pyæmic cases, showing joint complications. See under SYNOVITIS. *Aliment*. Milk alone, or alcohol with milk, eggs, broth (B.). Coffee, a better stimulant than alcohol (P.). Alcohol is needed to sustain the heart's action (Da C.). Milk must be used with great caution, if the curd be undigested great evils arise; give essence of meat alone (Sir William Jenner). Avoid the extremes; an absolute milk diet required if intestinal symptoms are grave; no solid food until health is restored fully; a scalded-milk diet exclusively may be depended on. *Adjuvants*, water, especially the abdominal compress, cleanliness, ventilation, absolute rest and quiet. Discharges should be received in vessels containing carbolic acid or a solution of corrosive sublimate, and buried instantly. [Compare HEMORRHAGE, INTESTINAL, RECTAL ULCERATION, TYMPANITES.]

Prescriptions.

℞. Tinct. Iodi,
Ac. Carbolici, ... āā p. æq.
M. Sig.—gtt. j–ij every 4 or 6 hours. In typho-malarial fever.
(*Bartholow.*)

℞. Quininæ Sulphatis, ... gr. x.
Ac. Hydrochlor. Dil., . . ℥ss.
Vel Ac. Sulphur. Dil., ... ℥ss.
Syr. Aurantii, ... ℥j.
Aquæ Carui, ... *ad* ℥vj.
M. Sig.—A tablesp. in an equal quantity of water, every 3 or 4 hours.
(*Murchison.*)

℞. Ac. Sulphurosi, ... ♏ xv.
Ac. Sulphur. Dil., ... ♏ xv.
Tinct. Opii Deodor., . . . ♏ ij.
Syr. Aurantii, ... ʒiv.
Aquæ, ... *ad* ℥j.
M. Sig.—For infants, one-sixth to be taken every 4 hours.
(*Wilks.*)

℞. Ant. et Potassii Tartrat., . gr. j–ij.
Morphinæ Sulphat., . . . gr. jss.
Aquæ Laurocerasi, . . . ℥j.
M. Sig.—A teasp. every 2, 3, or 4 hours.
(*Bartholow.*)

℞. Ac. Sulphurosi, ... ʒ ij.
Ac. Sulphur. Dil., ... ʒ ij.
Tinct. Opii Deodor., . . . ♏ xx.
Syr. Aurantii, ... ℥iij.
Aquæ, ... *ad* ℥vj.
M. Sig.—One-sixth to be taken every 4 hours.
(*Wilks.*)

℞. Ac. Sulphurosi, ... ʒ ij.
Syr. Aurantii, ... ℥iij.
Aquæ, ... *ad* ℥vj.
M. Sig.—One-sixth every 4 hours.
(*Wilks.*)

℞. Ac. Sulphurosi, ... ♏ xv.
Syr. Aurantii, ... ℥iij.
Aquæ, ... *ad* ℥j.
M. Sig.—For infants, one-sixth every 4 hours.
(*Wilks.*)

Typhus Fever.

Baptisia, is said to have proved very useful (W.). *Belladonna*, to cleanse and moisten the tongue; controls the delirium, slows and strengthens the pulse, reduces the temperature, shortens course of disease (R., P.). In the early stages, relieves severity of symptoms (P.); contracted pupils (B., Wa.). *Arnica*, very highly extolled (P., Wa.). *Hyoscyamus*, mild brain symptoms (P.). *Opium*, fulfils many important indications; never when contracted pupil (Wa.). *Mineral Acids*. Hydrochloric, nitric, sulphuric; their use recommended in all countries (Wa.). *Tartar Emetic*, with opium in the delirium with insomnia (R.). [See TYPHOID.] *Chloral*, to produce sleep, and allay violent delirium (R., Wa.);

its use has often been followed by amelioration of the symptoms (Wa.). *Antipyrine or Quinine*, as antipyretics, it being more necessary than in typhoid to keep the temperature within safe limits (B.). *Podophyllin*, gr. ⅛–¼ as *mild* laxative at onset, when constipation, congestive headache, biliary derangement (P.). *Digitalis*, in large doses, a favorite remedy in Germany (P.). *Rhatany*, as tonic, in advanced stages (P.). *Serpentaria*, in low stages, delirium, watchfulness; tongue dry and brown, or black. Combine with ammonium, sesquicarbonate (P.); given occasionally to excite diaphoresis, and support the vital powers (Wa.). *Camphor*, a remedy of considerable value; contra-indicated when flesh-red tongue, tender abdomen, diarrhœa (Wa.). *Purgatives*. [See TYPHOID FEVER.] *Coffee*, better than alcohol for the adynamia (P.). *Stimulants*, are not needed under the use of mineral acids and a supporting diet, in many cases (Wa.); are needed sooner than in typhoid, as the adynamia is more profound and appears sooner (B.). *Diet*, nutritious persistently. Beef-tea, egg-nog; nutrient enemata. *Isolation*, imperative, as the disease is eminently contagious (B.). [Compare DELIRIUM, TYPHOID FEVER.]

Ulcers and Sores.

Arsenic, improves rodent ulcer (B.). *Belladonna*, has a remarkable influence over various ulcerative processes (P.). *Mercury*, Calomel ointment or black wash in scrofulous or tuberculous lupus, and in open scrofulous sores (R.); corrosive sublimate, 1 per cent. solution, as application to syphilitic ulcers (Fox); the Ung. Hydrarg. Nitratis, for serpiginous ulcerations, diluted one-half, or the Iodide, gr. xx–xl ad ℥j Vaselini, in syphilitic ulcerations (Keyes). *Lime*, as carbonate or lime-water to checkdischarge; the sulphide when thin ichorous discharge; the phosphate has influence on scrofulous sores (R.). *Phytolacca*, as a local application (B.). *Hamamelis*, employed with satisfaction in varicose ulcers (Pf.). *Opium or Morphine*, with glycerin, as an application to relieve pain (R.); gr. j–ij, daily, also locally, has a decidedly curative value in phagedenic and indolent ulcers; not so useful in so-called "irritable" ulcers (Pf., P.). *Tannin*, or glycerite of Tannin, to coat over wounds, or discharging sores (R.). *Potassium Chlorate*, in solution as a wash to clean and stimulate foul ulcers (R.); in impalpable powder, a better application than is Iodoform (B.). *Cinchona*, powdered bark dusted over foul, indolent,sloughing, and gangrenous ulcers, promotes healing (R.). *Conium*, locally, by means of a poultice, will ease pain and improve the sore (R.). *Chlorine Solution*, as a wash for sloughing and indolent sores (R.). *Iodide of Starch*, cold as a poultice (R.). *Lead*, the soluble salts as lotions to unhealthy, over-secreting sores (R.). *Pyrogallic Acid*, an excellent application in venereal ulcers (Vidal). *Chloral*, in lotion, gr. v–xx ad ℥j aquæ, for sluggish sores (Keyes). *Nitric Acid*, as escharotic, applied with a glass rod; oil to protect surrounding tissues; arrest by alkaline wash. ℥j–Oj is a good acid lotion for washing (B.); the lotion to indolent and painful ulcers (R.). *Hydrastis*, internally and externally, employed with excellent results in rodent ulcer, and ulcers of legs, rectum, and uterus (R.). *Sanguinaria*, locally, to repress fungous granulations of indolent ulcers, 1 to 80 parts glycerini (P.). *Carbolic Acid*, and *Salicylic*, locally (B.). The glycerin of carbolic acid a good application to fetid sores (R.). *Balsams of Peru* and *Tolu*, excellent (P.). *Camphor*, dusted over indolent sores (R.). *Charcoal*, locally to sloughing sores (R.). *Alcohol*, to cover sores with thin protecting layer of coagulated albumen (R.). *Alum*, dry or in solution to relaxed and abundantly-secreting sores (R.). *Turpentine*, internally for ulceration of bowels (P.). *Collodion*, as protective covering (P.). *Capsicum*, a weak solution useful as a stimulant in scrofulous or fistulous sores (P.). *Savine*, as acrid (not chemical) caustic (P.). *Potassa Fusa*, or the milder Vienna paste, as escharotic; toarrest, dilute acid (B.). *Zinc Chloride*, the most efficient escharotic consistent with safety (B.). *Zinc Sulphate*, dried, dusted over (R.). *Iodoform*, dusted over surface (B.); prevents granulation in all ulcers, and does no good except to relieve pain (Gross). See *Potassium Chlorate* above. *Silver Nitrate*, as caustic, quickly rubbed over (B.). Applied to unhealthy ulcers, also ulcers of the mouth (R.). *Copper Sulphate*, to indolent ulcers. Touch with a crystal, or frequently apply a solution, gr. ij–x ad ℥j (B., R.). *Coptis*, the infusion has high reputation (B.). *Chimaphila*, *Copaiba*, *Catechu*, *Myrrh*, *Rhatany*, *Rhubarb*, *Storax*, *Benzoin*, *Tar water*, locally, are useful (P.). *Oxygen*, to atonic painful ulcers (R.). *Galvanic Couplet* (B.). [See BEDSORES.] *Yeast*, as poultices (R.). *Section* of exposed nerve-filament, in irritable ulcer, by bistoury passed beneath the sore (Hilton on Rest and Pain). *Cod-liver Oil*, especially for ulcerations of the glands, or indolent ulcers with excoriated edges, lupus, etc. *Water*, is sufficient as dressing in the majority of cases. *Rest* and support of great value. Cleanliness, bandaging and recumbent position in ulcer of legs facilitate recovery; also daily washing to restore the lost vitality of parts; elastic stockings, and the Esmarch bandage in chronic cases. [Compare CHANCRE, CHANCROID, BEDSORES, THROAT, GASTRIC, INTESTINAL, and UTERINE ULCERATION, SYPHILIS.]

Prescriptions.

℞. Iodoformi, ... ʒij.
Mucil. Acaciæ, ... ♏xv.
Ol. Menthæ Pip., ... ♏ij.
Glycerini, ... ♏xx.
M. Sig.—For unhealthy ulcers.
(*Bronson.*)

℞. Emplas. Plumbi, ... ℥ij.
Ung. Hydrargyri, ... ʒss.
Olei Cadini, ... ʒij.
M. Sig.—Spread on linen, and apply to inflamed patches on palms from syphilis.
(*Bumstead and Taylor.*)

℞. Hydrarg. Chlor. Corr., . . gr. xv.
Ac. Carbolici, ... ♏xxv.
Aquæ, ... q. s. *ad* ℥iv.
M. Sig.—For syphilitic ulcers, pack on cotton, and renew daily. (*Fox.*)

℞. Ung. Petrolei, ... ℥ij.
Ung. Hydrargyri, ... ʒiv.
Olei Cadini, ... ʒij.
M. Sig.—Apply after removing scales to chronic palmar and plantar lesions.
(*Bumstead and Taylor.*)

Uræmia.

Digitalis, the infusion, or a poultice of leaves to abdomen and back (B.). *Jaborandi*, diaphoretic; eliminates urea (B.); or Pilocarpine hypodermically. *Opium*. Scanzoni and Loomis urge morphine, hypodermically, as the most efficacious agent (B.); in acute, not in chronic uræmia (Pf.). *Colchicum*, as diuretic (B.). [See DROPSY.] *Saline Cathartics*, active are required (B.). *Hydragogue Cathartics*. Ol. tiglii (gtt. i–ij), or elaterium (gr. $\frac{1}{16}$ to $\frac{1}{4}$), to procure free watery evacuations. Cautiously (B.). *Transfusion*, in uræmic eclampsia (B.). *Water*, the vapor bath, or hot wet-pack to induce powerful diaphoresis (B.). [Compare BRIGHT'S DISEASE, PUERPERAL CONVULSIONS, SCARLATINA, and the list of Diuretics and Diaphoretics, on pages 43 and 46.]

Urethritis.

Aconite, is used to advantage in urethral fever; also for prevention of chill after passage of sound (Pf., W.). *Silver Nitrate*, locally, very efficient in chronic urethritis in females (Wa.). *Tannin*, on bougies, once a week for 15 minutes, most efficient for urethritis in the female (Wa.). *Zinc Sulphate*, cast in sticks, for introduction into the urethra (Wa.). *Potassium Bicarbonate*, with Potassium Acetate, āā gr. x in a large cup of flaxseed tea or a glass of Vichy water, every 4 to 6 hours; with absolute rest in bed, a calomel purge, and urination under hot water, sufficient for most cases of urethritis, which may arise from lithiasis, leucorrhœa in females, etc. Many cases of aborted gonorrhœa (so-called) were really simple urethritis (Otis). [Compare GONORRHŒA.]

Urethral Stricture.

Aconite, is of great service in spasmodic stricture (P.). *Cocaine*, locally by catheter (Smith). *Buchu*, in irritable urethra, spasmodic stricture, and gleet (P.). *Opium*, in full dose or an opiate suppository, with fomentations and a warm bath, will often suffice in spasmodic stricture (Cl.). *Catheterization*, under an anæsthetic in spasmodic stricture if other measures fail to relieve. Also for gradual dilatation in organic stricture, the safest and most generally applicable treatment (Cl.). *Oil*, injected before dilatation (Wa.). *Thorough Division*, by a dilating urethrotome the best operation for a radical cure; 600 cases thus treated without a death or permanent disability (Otis).

Urinary Disorders.

Aconite, of great service in retention from chill, sub-inflammatory (P.). *Turpentine*, in hematuria and chronic catarrh of the bladder, incontinence from atony, etc. (B.). *Strychnine*, sometimes employed with marked benefit in retention or incontinence of the old (P.). *Cantharis*, frequent or involuntary micturition, especially when coughing, in women from weakness of sphincter; one or two drop doses (R.). *Cannabis Indica*, in retention from spinal diseases (R.). *Digitalis*, holds high as a diuretic, ʒj or ij of the infusion night and morning, or oftener if necessary; in sudden suppression from cold or damp or after scarlatina, if danger threatens (P.). *Benzoic Acid*, or the Benzoate of Sodium, in 10–15-grain doses, to render alkaline urine acid, and check the formation of phosphates (B.). *Nitro-hydrochloric Acid*, dilute, gtt. x–xv thrice daily in water, for phosphatic deposits (Mears). *Ammonium Carbonate*, in 6-grain doses, 3 or 4 times a day, to make acid urine alkaline. *Triticum Repens*, a favorite remedy with Sir Henry Thompson, in pint doses daily of its infusion or decoction (℥ij–iv ad Oj), for strangury, cystitis, and many other complaints, connected with the urinary apparatus. *Alkalies*, to neutralize acid urine, and control chronic cystitis; the liquor potassæ preferable to the bicarbonates, tartrates, and citrates, which all have diuretic action and increase the frequency of micturition; Liquor Potassæ mixed with the tinctures of Hyoscyamus or Belladonna, may undergo chemical changes, but it materially controls painful and frequent micturition in bladder troubles (Thompson). *Buchu*, renders more help than any drug known in incontinence or retention from catarrh of bladder implicating the ureters, and even the kidneys (P.). *Water*, copious injections are beneficial in some cases of suppression (R.). [Compare the list of diuretics on page 43;—and in this section see BLADDER IRRITABLE, AND PARALYSIS OF; CYSTITIS, DIABETES INSIPIDUS, DYSURIA, DROPSY, ENURESIS, HEMATURIA, LITHIASIS, NEPHRITIS, OXALURIA, URÆMIA, URETHRAL STRICTURE.]

Prescriptions.

℞. Pulv. Scillæ,
Pulv. Digitalis,
Hydrarg. Chlor. Mitis, aa gr. xij.
M. ft. pil. no. xij. Sig.—One pill as a diuretic twice daily. (*A. Clark.*)

℞. Acidi Benzoici, ... ʒ ij.
Sodii Boratis, ... ℥ iij.
Aquæ, ... ʒ xij.
M. Sig.—A teasp. in water, thrice daily, to keep urine acid. (*Emmett.*)

℞. Ext. Belladon. Fl., ... ʒ ss–j.
Ext. Buchu Fl., ... ℥ j.
Spt. Ætheris Nitrosi, . . . ʒ ij.
M. Sig.—A teasp. 3 or 4 times daily, for dysuria in women.

℞. Potassii Bicarb., ... ʒ iijss.
Acidi Acetici, ... ℥ vj.
Aquæ, ... ʒ iij.
M. Sig.—Teasp. doses as required, as a diuretic. Each contains about gr. x of Potassium Acetate.

℞. Potassii Citratis, ... ℥ j.
Sodii Bicarbonat., ... ʒ v.
Syr. Limonis, ... ℥ j.
Aquæ, ... q. s. *ad* ℥ iv.
M. Sig.—A teasp. every 2 hours, to render the urine alkaline. (*Roberts.*)

℞. Tinct. Digitalis, ... ʒ ss–j.
Spt. Ætheris Nitrosi, . . . ʒ iij.
Liq. Ammon. Acetat., . . . ℥ ss.
Aquæ, ... q. s. *ad* ℥ vj.
M. Sig.—One sixth every 3 hours, to re-establish the renal secretion. (*Goodeve.*)

Urticaria.

Chloroform, as ointment to allay itching (R.). *Potassium Cyanide*, or Hydrocyanic Acid (R.). [See PRURIGO.] *Nitric Acid*, a dilute wash, controls itching and prevents wheals (R.). *Benzoin*, the compound tincture painted on the skin for itching (R.). *Sodium Salicylate*, gr. ij every ½ hour, is remarkably efficient (A. A. Smith); gr. xx thrice daily is effective. *Copaiba*, in full doses will produce urticaria, but drop-doses every ½ hour will sometimes control it (A. A. Smith). *Strychnine*, with emetics and purgatives, when the affection is chronic (Guibout). *Colchicum*, in gouty persons (R.). *Lead*, lotions to ease itching (R.). *Alkalies* (R.). [See PRURIGO.] *Warm Baths*, may be employed with benefit.

Prescriptions.

℞. Acidi Benzoici, ... gr. viij.
Aquæ, ... ℥iv.
M. Sig.—Lotion for urticaria.
(*Squire.*)

℞. Atropinæ Sulphat., . . . gr. ⅙.
Aq. Destil., Glycerini, . . āā ʒss.
Pulv. Tragacanthæ, q. s.
Ft. pil. no. x. Sig.—One bis die.

Uterine Cancer.

Conium, useful as a palliative, ʒiij–iv ad Oj aquæ, as injection for extreme pain of uterine cancer (Wa.). *Arsenic*, small doses for a long time, with a strong iodine solution and glycerin locally (Atlee). *Opium*, stands first in the list of palliatives, quieting irritation, allaying pain (Wa.). *Morphine*, the specific action of morphine upon the uterine circulation should be utilized in hopeless cases of this disease (Lutaud). *Carbolic Acid*, a weak solution as injection, an excellent cleanser, healer, disinfector and allayer of pain (R.). *Bromine*, the best escharotic for destruction of the mass (E.). *Glycerite of Tannin*, checks discharge and stench. Better still if mixed with glycerite of carbolic acid (R.). *Iodoform*, with cocoa fat as bolus inserted into excavation produced by cancer (R.); gr. v–x in each bolus (W.). *Iodine*, the saturated tincture thoroughly applied to the entire surface of the mass, is frequently of great use in checking hemorrhage, and seems to temporarily check the extension of the disease (E.). *Chloral*, as anodyne, will agree with most persons (E.); relieves the pains (W.). *Chloroform Spray*, for some minutes (R.). *Cannabis Indica*, to allay the pain (Wa.). *Surgical Measures*, advisable; medicine can only palliate.

Uterine Congestion and Hypertrophy.

Aurum, salts of, often beneficial in chronic metritis with scanty menstruation (B.). *Ergotine*, long continued, successful in chronic metritis; lessens congestion (B.); long continued has produced remarkable results in fibroids and polypi and chronic metritis; large, spongy, subinvoluted uterus (P.); by interstitial injection into the cervix, has been cf great benefit (Goodell). *Carbolic Acid*, undiluted, on cotton-wrapped probe. No better treatment for uterine catarrh (B.). *Iodine*, has proved the most valuable of all remedies, as local stimulant, and a reliable alterative (Thos., E.); and excitant of uterine contraction. Use a saturated tincture to any part not exposed to the air (E.); may be injected into cervix (G.). *Iodo-tannin*, or Iodoformi ʒj, Ac. Tannici ℥j; a serviceable application in many inflammatory and hypertrophic conditions. Iodoform suppositories in chronic metritis (P.). *Potassium Bromide*, our main stand-by in uterine troubles; apart from its soothing properties it seems to divert the blood from the womb, and to lessen uterine congestion (Goodell); a specific cure for simple subinvolution, the benefit being derived from the potash (Tait). *Digitalis*, in subinvolution (B.). *Glycerin*, on cotton tampon to cervix as local hydragogue (Thos.). *Caustic Potash*, and Potassa cum Calce, said to be effective in chronic metritis; must be used cautiously (B.). *Chromic Acid*, a strong solution to interior of uterus, a very useful application. *Ipecacuanha*, in subacute metritis of the puerperal state (Tr.). *Iron*, locally in uterine catarrh (R.); as tonic, Iron and other restoratives, a cardinal rule in the treatment of all uterine disorders, with Ergot, Quinine, Arsenic or Potassium Bromide, whenever the womb as a whole is congested or hypertrophied. Syr. Ferri Iodidi, with Cod-liver Oil, wins half the battle (G.). *Zinc Valerianate*, in 2 to 4-grain doses thrice daily, is one of the best nervines in these cases (G.). *Scarification*, after dry cupping, in chronic metritis (Thos.). *Electricity*, in chronic congestive enlargement, a galvanic current of moderate intensity, slowly interrupted (B.). *Water*, hot injections or douche, also cold alternately; one of the most effective measures; a gallon very hot, ter die (R.);—especially valuable in congestion, which is generally venous;—elevated hips a necessary part of treatment (E.). Cold water is often better than hot (G.). *Rest*, to the patient and the organ, is of prime importance. Abdominal bandage, skirt-supporters, pessary if anteversion or retroversion, abstinence from sexual intercourse (Thos.).

Prescriptions.

℞. Ext. Humuli, ... ℥j.
Elix. Ammon. Valerianat.,
Syr. Lactucarii, ... āā ℥ss.
M. Sig.—A dessertsp. at bedtime, or during the day when needed, as an antispasmodic. (*Goodell.*)

℞. Iodi,
Potas. Bromidi, ... āā gr. xx.
Tinct. Iodi, ... ℥j.
Aq. Destillat., ... *ad* ℥iv.
M. Sig.—♏xxx to be injected into cervix by 3–5 punctures. (*Goodell.*)

Uterine Diseases.

Cimicifuga, to prevent miscarriage in irritable uterus and prolapsus (R.); promises to be a valuable remedy in uterine affections (Wa.); is remarkably efficient in neuralgia and sympathetic pains arising from an irritable uterus, no matter what their precise character (P.). *Belladonna*, with tannin, as suppository in uterine neuralgia (R.); as vaginal or rectal injections, in neuralgic or inflammatory pains (Tr.). *Arsenic*, in irritable uterus, of decided benefit; gr. $\frac{1}{20}$ ter die, after meals (Wa.). *Carbonic Acid*, injection up vagina for neuralgia (R., Wa.). *Opium*, with starch as injection into the rectum will subdue the pain of uterine diseases (R.); gives more speedy relief than any other remedy in irritable uterus, but long-continued is one of the worst (Wa.). *Iodized Phenol*, has proved the most generally efficient agent for intra-uterine use during eight years' experience, applied by hard-rubber probes wound with cotton-wool. It removes cervical mucus, gives freedom from pain, softens and dilates the cervix, heals abrasions, removes induration, removes villosities, regulates the menses, improves appetite and digestion, acts as a general alterative, overcomes barrenness, etc., if used long enough, but rapid results are not attainable by any method of treatment (Battey). *Lead*, as plaster for pain in the back due to uterine disease (R.). *Chloroform*, spray, in neuralgia (R.). *Aqua-puncture*, has had extraordinary success in uterine colic (B.). *Baths* of warm salt water remarkably useful in nervous or inflammatory hysteralgia (Tr.). [See Abortion, Amenorrhœa, Climacteric, Dysmenorrhœa, Endometritis, Hemorrhage Post-partum, Leucorrhœa, Menorrhagia, Menstrual Disorders, Metritis, Metrorrhagia, Prolapsus Uteri, etc.]

Uterine Displacements.

Anteversion without prolapse, not a mal-position (E.). *Ice*, locally when parts inflamed (R.). *Hot-water* injections, to give tone to the vessels, essential. Also valuable after reduction of mal-positions (E.). *Mechanical Means*, only reliable or safe in retroversion and prolapse; the sound, as a means to restore a retroverted uterus to position, cannot be regarded as free from risk, even in skillful hands (E.). *Pessaries*, harmful unless expertly fitted; should be adjusted so as to restore the uterus to the normal line, where the circulation will be least obstructed; not too high. Should never be employed while cellulitis exists (E.). *Cotton Roll*, as a substitute for the orthodox pessary, is far superior. Use the

Borated cotton in flat sheets, rolling it into a roll 2 inches long by 1 inch diameter, and saturating it in Boroglyceride ℥j, Aluminii Acetatis ℥j, Glycerini Pur. q. s. *ad* Oj. If an astringent is required, the Acetate is replaced by Aluminii Sulphas (Wylie). [Compare PROLAPSUS UTERI.]

Uterine Tumors.

Mercury, the bichloride in small doses, long continued, of undoubted value in treatment of fibrous or polypoid growths; gr. $\frac{1}{16}$ every 6 hours, sometimes restrains the hemorrhage, when other remedies fail (Wa.). *Calcium Chloride*, in 30-gr. doses thrice daily, has by prolonged use cured uterine fibroids, (Hewitt); calcifies uterine arteries, also those of the body generally, and is dangerous thereby (Tilt, Wells). *Ergotin*, hypodermically for fibrous tumor (R.); gr. ij–vj, on alternate days, give excellent results (B.); nine cases of fibroid treated by Hildebrandt with good results (P.); this method often causes great pain and severe local inflammation (W.); one grain each of Ergotin and Ferri Sulphas Exsiccat., in pill thrice daily, persistently, for uterine fibroids, using for the hemorrhages a tampon saturated with Tincture of Iodine or Monsel's Solution (Parvin). *Opium*, has specific action upon the uterine circulation, and in bleeding from hopeless cases of cancer or from fibroid tumors, should be used freely, regardless of danger of opium habit. (Editorial, N. Y. Med. Rec., Dec. 10, 1887.) *Ammonium Chloride*, in fibrous tumors, gives more benefit than any other remedy, gr. x, twice or thrice daily, for weeks and months consecutively (Atlee). *Ferric Subsulphate*, injected to restrain bleeding. Cautiously! (B.). *Saline Mineral Waters* especially those at St. Catherine's Canada, are useful (B.). *Aliment*, carefully regulated, chiefly of animal food; with recumbent posture while flowing, and long-continued use of Ergot *in small doses*, may accomplish something (E.). [Compare CYSTS.]

Uterine Ulceration.

Hydrastis, quickly improves; the fluid extract undiluted as topical application in uterine and vaginal leucorrhœa, ulcerations and erosion of cervix (B.). *Carbolic Acid*, pure, over the surface twice a week in simple ulceration (R.). *Silver Nitrate*, a serviceable application, but is often abused (B.). The solid stick applied to surface, after cleansing, and drying with cotton-wool (Wa.). *Alum*, as hip-bath, ℔j ad Cj, and vaginal injection is of great utility in ulcerations of the os uteri, or of the uterine cavity (Recamier). *Glycerin* 25, Alcohol 12½, and pure Creasote 1 part, an excellent application to ulcers of the neck. *Bismuth Subnitrate*, with enough Glycerin to make a thick cream, is the best of all applications for ulceration of the os and cervix uteri (Suesserott). *Vegetable Astringents*, Infusions or decoctions of galls, oak-bark, hamamelis, geranium, alum-root, etc. The glycerite of tannin, tannin and iodoform, packed around cervix (B.).

Uvula.

Tannin, *Rhatany* or *Zinc*, as astringent lozenges, for relaxed uvula (A.). *Amputation*, of elongated part (A.).

Vaccination.

Aconite, with *Belladonna* ointment for erysipelatous redness after vaccination (R.). *Zinc Oxide*, dusted over, to allay the subsequent local irritation (Wa.); with Pulv. Amyli, equal parts, over the surface. *Lead Acetate*, ʒj to Oj water, as lotion for irritable pock (Foster). *Carbolic Acid*, ʒj, to Oj water, as lotion for excessive redness, with burning and itching.

Vaginismus.

Ether, to ascertain cause; usually a displacement, fissure, or cellulitis (E.). *Hygiene*, sun-baths, hot-water injections, fresh air, removal from husband, etc.

(E.). *Operation* (Sims'), removal of hymen with scissors and insertion of glass plug till parts are healed, when the cicatrix is to be divided, etc. (E.). *Tents* to gradually dilate vagina, may be impregnated with various sedatives (Gallard). *Iodoform* in a suppository, when redness and excoriation. *Belladonna*, the extract, 1 part with 8 or 9 of fresh lard, if only pain (Gallard).

Vaginitis.

Tannin, the glycerin of tannin in chronic vaginitis of children (R.). *Silver Nitrate*, gr. xl–℥j aquæ, applied within cervical canal, and over the vaginal mucous membrane (E.). *Emollient Injections*, with Opium (Goodsell). [Compare GONORRHŒA, LEUCORRHŒA.] *Pinus Canadensis*. The concentrated extract (colorless), locally, has a very soothing influence in acute vaginitis.

Varicella.

Diet, no animal food, milk best; which, with careful attention to the bowels, patient to be kept cool with light covering, and use of a mattress rather than a feather bed, is all the treatment required (A.). *Saline Mixture*, if high fever. *Quinine*, during convalescence. *Complications* to be treated symptomatically.

Varicocele.

Hamamelis, appears to have permanently cured one case (R.). *Ergot*, gr. ij–vj of Ergotin hypodermically, the needle to be inserted among the affected veins, care being taken not to puncture a vein, is effective; severe pain follows for a few hours (R.). *Water*, cold douche to the perineum and buttocks, with suspension of testicles in cold water (R.). *Radical Cure*, consists in obliterating the veins by wire ligatures, etc. (Cl.).

Varicosis.

Hamamelis, is employed with satisfaction in varicose veins and ulcers (Pf.). *Digitalis*, by fomentation, in acute inflammation from varicose ulcers (R.). *Ergotin*, injected along side of vein, but not within it, has cured (B.). *Bandage*, or elastic stocking; with cold sponging, and rubbing upwards, as palliatives (Cl.). [Compare HEMORRHOIDS, ULCERS.]

Variola.

Cimicifuga, is given internally by some, who assert that it prevents pitting (R.). *Mercury*, in ointment or plaster, to prevent pitting in semi-confluent, or barely confluent cases (Wa.); formerly used (R.). *Camphor*, is said to restore the eruption, if retrocedent; in confluent or malignant small-pox, camphor alone, or with Opium, may be used for great depression of the vital powers (Wa.). *Belladonna*, successfully used both as prophylactic and curative agent (Erasmus Wilson). Gr. ½–j every 3, 4, or 6 hours, to dilatation of pupil and some stupor; found effectual (Wa.). *Carbolic Acid*, is used with decided advantage (Wa.). [See MEASLES.] Has been much used on theoretical grounds, but not with success (B.). *Ammonium Carbonate*, has had cheering success (Wa.). [See SCARLATINA.] *Quinine*, small doses in adynamic states, larger in hyperpyrexia (B.). *Chloral*, temperature high, much delirium, and restlessness (B.). *Opium*, low, muttering delirium; not so much used now as formerly (B.); morphine in the insomnia of the advanced stage, once or twice only, but not when copious salivation or mucous expectoration (Wa.). *Silver Nitrate*, on a sharp-pointed stick, inserted into each vesicle after rupture, to prevent pitting (B.); or simply paint skin with a solution of gr. xx to the ℥ (R.). *Iodine*, the tincture to prevent pitting, is painted ten times over face if on first day of eruption, 12 if on the second day, 12–16 times if on third day (B.). *Collodion*, or solutions of India rubber or gutta percha in chloroform, to prevent pitting; or cotton-wool dipped into lime liniment, applied to face or neck (R.). *Water*, Cold baths and cold pack of great utility (B.). Packing especially on retrocession of rash (R.). *External Applications*, as powdered starch, flour; zinc carbonate, 3 parts to 1 of zinc oxide with olive oil; cold or tepid water with vinegar, sponged over body twice or thrice daily (Wa.). *Diet.* Tea and dry toast, raw eggs beaten in cold milk, beef-tea, grapes, roasted apples, ripe fruits in season. Cold water may be drank freely. *Fats.* Bacon-fat smeared over the face, to allay itching and prevent pitting. [Compare VACCINATION.]

Vertigo.

Digitalis, in small doses, alternately month by month with tincture of larch, and with a long course of the citrate of iron and strychnine, in essential vertigo, without any other head symptoms, and with general depraved nutrition, the most effectual treatment (Wa.). *Potassium Bromide*, often controls paroxysmal vertigo, without coexistent spasm, or organic brain-disease (Wa.). *Ammonium Bromide*, in an effervescing form with cascarilla, for vertigo from overwork, where there is usually restlessness, insomnia, depression of spirits, with a sense of impending evil (Wa.). *Alkalies* and *Bitter Tonics*, give the best results in vertigo of gastric origin. *Sodium Bicarbonate*, after meals, tonics before meals. *Strychnine* with Iron, thrice daily, gives good results. *Corrosive Sublimate*, in small doses, with attention to the bowels and diet. *Cod-liver Oil*, giddiness of the aged, when no serious brain-disease (R.). Is mostly symptomatic of disorder of the stomach, or of the liver (cholæmia); sometimes of general debility; rarely of disease of the brain (H.).

Vomiting.

Ipecacuanha, in small doses, will arrest certain kinds—a curious fact; especially useful in certain forms; ♏j of vinum ipecac., every ½ hour or more (B., R., P.); in sick stomach of nervous origin, minute doses are of undoubted value (W.). *Arsenic*, in many forms of stomach vomiting, especially that of alcoholism, and chronic ulcer (B.), and in the vomiting of cholera (R.); gtt. ss of Fowler's solution, every ½ hour for 6 or 8 doses, often relieves vomiting after a debauch, the A.M. vomiting of drunkards, and that of pregnancy (A. A. Smith). *Nux Vomica*, stands next to arsenic; is useful in many ways (B.); may be given with Ipecac., especially when tongue coated (R.). *Iris*, in vomiting with blinding right supraorbital pain; liver deranged (P.). *Bismuth*, in many forms of vomiting in children, especially when from gastric catarrh (R.). *Carbolic Acid*, with or without bismuth (B.); in nervous vomiting (W.). *Creasote*, in the vomiting of cancer, gastric ulcer, etc. (R.); gtt. j–ij (W.). *Cocaine*, in doses of gr. ¼ thrice daily, controlled the vomiting of gastric carcinoma, after all other means failed (Meigs): 10-minim doses of a 4 per cent. solution every hour, of inestimable value in the vomiting of yellow fever (Jennings). *Potassium Nitrate*, one of the surest remedies against vomiting and nausea, gr. ¼ in ℥ss of cold water every 4 or 5 minutes, until relieved, in all cases, except reflex ones, and those due to irritant poisons (Moore). *Mercury*, gr. ⅓ of gray powder every two hours, especially in children with clayey stools (R.); Calomel, gr. j to Oj aquæ, first dissolved in ℥j of lime water—a teasp. every ten minutes for the regurgitation of food in nursing children (A. A. Smith). *Sulphurous Acid*, ♏v–ʒj, well diluted, or less effectively, sodium sulphite. Sulphites often curative in vomiting of sarcinæ, and acid matter, due to acid fermentation of starchy elements (B.). *Cocculus Indicus*, efficient in cephalic vomiting (P.). *Opium*, will arrest many kinds; best in that of biliary or renal calculi, dysmenorrhœa, sea-sickness, pregnancy. Morphine, hypoder., gr. 1/12 to ⅙ (P.). *Bryonia*, bilious vomiting and headache (P.). *Veratrum Album*, in vomiting and purging of summer diarrhœa (R.). *Hydrocyanic Acid*, often very serviceable in nervous vomiting; acts promptly if at all (R.). *Hydrobromic Acid*, ʒss in ℥j of water, four times daily, useful for the vomiting due to gastric ulcer. *Chloroform*, ♏ij–v, on sugar, for non-inflammatory vomiting (R.).; see YELLOW FEVER for formula. *Bromides*, in cerebral vomiting only; not in the gastric form (B.); potassium bromide in that of uterine disease (W.). *Cinnamon* or *Cloves*, will check vomiting (P.). *Calumba*, in vomiting from kidney disease and renal calculi; frequently allays that of pregnancy and dentition (P.). *Serpentaria*, for bilious vomiting (P.). *Cerium Oxalate*, in that of pregnancy and from cancer (B.); gr. j every three hours (R.). *Sodium Bircarbonate*, ʒss–j to a pint of milk, for infants especially if constipated (R.). *Ammonium Carbonate*, may relieve when vomited matter is acid (B.). *Milk and Lime water*, often relieves when other methods fail; also the effervescing soda powders in the vomiting of acute diseases, and the exanthemata (B.). *Alcohol*. Iced brandy or champagne in spoonful doses every ½ hour in vomiting of cholera, pregnancy, and delir. trem. (B.). *Counter-Irritation*, at epigastrium (R.). *Nutrient Enemata* (B.). [See ENEMATA.] *Ice*, sucked, with horizontal posture, absolute rest and quiet (Wa.). Iced champagne, ℥ss every ¼ hour (B.). *Pepsin*, for vomiting of food after meals; gr. x–xv before or during meals. *Kumyss*, has proved efficacious when no other food would remain on the stomach. [Compare the List of ANTI-EMETICS, on page 37, also the articles entitled HEMATEMESIS, NAUSEA, SEA-SICKNESS, VOMITING OF PREGNANCY.]

Prescriptions.

℞. Ac. Hydrocyan. Dil, . . . ʒj.
Aquæ Laurocerasi, . . . ℥ij.
M. Sig.—A teasp. every 2 hours, for nervous vomiting.

℞. Ac. Hydrobromici Diluti, . ℥ij.
Sig.—Half a teasp. in a winegl. of water, 4 times daily.

Vomiting of Pregnancy.

Ipecacuanha, or *Nux Vomica*, either will generally succeed where the other fails (R.); no other remedy of equal value to Ipecacuanha (P.). *Nux Vomica*, is useful but often fails; gtt. ss–j every hour or two in water (R.); in very minute doses (S.); gtt. ij–iij of the tincture every two or three hours, or gtt. x before each meal, with very hot water as a drink, is the best treatment (Parvin). *Arsenic*, Fowler's solution, gtt. j before each meal, will often relieve, when vomiting of food, retching and straining, with blood and pain (B.). *Creasote*, checks the vomiting (R.). *Carbolic Acid*, drop-doses of crystals liquefied by heat, in mucilage ter die (Wa.). *Staphisagria*, has subdued when other remedies failed (P.). *Cerium Oxalate*, gr. j every three hours (R.); ordinary doses far too small, give as high as 10 grains (B.). *Morphine*, hypodermically in severe vomiting (R.). *Pepsin*, has been used with success. *Ingluvin*, seems almost specific (B.). *Potassium Bromide*, is often efficacious (W.); ʒss doses thrice daily, exceedingly effective in the combined diarrhœa and vomiting of pregnancy. The first dose should be given an hour before rising. *Hydrocyanic Acid*, often the best remedy (P.). [See *ante*, VOMITING.] *Copper Sulphate*, sometimes effective, not more than gr. $\frac{1}{20}$ ter die (B.). *Iodine*, ♏v of the tincture in ℥ss of sweetened water, repeated in ½ hour, of magical effect in a bad case which had resisted every other treatment. Is often useful (B.). *Cocaine*, locally to cervix, promptly cured a most intractable case of several months' duration, though it failed when used internally (Bois). Has given excellent results when used internally. See formula below; or may use tablet triturates of gr. $\frac{1}{10}$ each. *Calumba*, as tincture often useful; drop-doses every hour or two (B.). *Bismuth*, and Carbolic Acid, are effective (B.). *Atropine*, frequently effective (R.); never failed to give relief in many years of using it (Boys). *Ether*, sprayed over the epigastric region and the corresponding part of the spinal column, for 3 to 5 minutes every 3 hours, gives immediate relief (Lubelsky). *Pop-corn*, is a god-send in this complaint, having acted marvellously in several cases in which I have used it (Sweringen). *Aconite*, in full doses, is often very successful (W.). *Dilatation* of the cervical canal, by the index finger, is regarded as extremely efficient, and reasonably safe. It may bring on abortion, if too extensive, but from records of several cases since 1875, it may be said that it is a safe and sure remedy (Copman). *Ice-bag* to spine, an efficient measure (R.).

Prescriptions.

℞. Atropinæ Sulphatis, . . . gr. j.
Morphinæ Sulphatis, . . . gr. iv.
Acidi Sulph. Aromat., . . ʒiij.
Aquæ, ... ʒv.
M. Sig.—Ten to twenty drops, thrice daily. (*Boys.*)

℞. Cocainæ Muriatis, ... gr. xv.
Acidi Carbolici, ... ♏x.
Aq. Cinnamomi, ... ℥ss.
Syr. Zingib., . . . q. s. *ad.* ℥j.
M. Sig.—10 drops, gradually increased to 20, in a little water every hour until relieved, then every 2 or 3 hours. (*Potter.*)

℞. Cerii Oxalatis, ... gr. xij.
Ipecacuanhæ, ... gr. xv.
Creasoti, ... gr. xxiv.
M. ft. pil. no. xij. Sig.—One every hour. (*Goodell.*)

℞. Cerii Oxalatis, ... gr. xxiv.
Ext. Hyoscyami, ... gr. xxxvj.
M. ft. pil, no. xij. Sig.—One pill twice daily. (*Goodell.*)

℞. Bismuthi Subnitrat., . . . gr. clx.
Cerii Oxalatis, ... gr. xl.
Morphinæ Sulphatis, . . . gr. jss.
Syrupi, et Acaciæ, . . *ad* ℥ij.
M. ft. emulsio. Sig.—A teasp. every hour until vomiting ceases. (*Van Valzah.*)

Vulva.

Sodium Hyposulphite, an unfailing remedy in lotion for aphthæ of the vulva (R.). *Arsenic*, much used for eczema (T.). *Lead Acetate*, a concentrated solution in glycerin, for eczema of vulva (T.). [Compare PRURITUS, PRURIGO.]

Vulvitis.

Alum, as lotion in vulvitis of children; gr. lx–Oj aquæ, or less strong if found to increase discharge (R.). *Lead*, solutions of the acetate or the diacetate as wash, after the acute stage has subsided. *Lime water*, as wash (R.). [Compare VAGINITIS.]

Warts.

Thuja, worthy of recommendation in the highest terms, for the cure of warts with a narrow base and pendulous body. A strong tincture locally three times a day, for one or two weeks, with 5 drops in a wineglassful of water internally, night and morning (P.). *Iron*, tincture of the chloride and dilute HCl acid, applied night and morning, equal parts, very effective (Bulkley). *Nitric Acid*, ʒj–ij of the dilute acid to a pint of water, as wash, to keep small syphilitic warts constantly moist (R.). *Sabina*, as caustic (P.); j–ij of alum (Wa.). *Rue*, the oil, with honey, locally (P.). *Arsenious Acid*, as a caustic; enough to be used to excite active inflammation. Liq. arsenicalis painted over warts (R.); may be taken internally (B.). *Mercurial Ointment*, containing 5 per cent. of Arsenic, or a plaster having in each 8 square inches 154 grains of Arsenic and 77 grains of Mercury (Unna). *Tannin*, and *Burnt Alum*, equal parts, powdered over warts daily twice, gives good results. *Chromic Acid*, gr. 100 to ℥j aquæ, with a glass rod, to saturate diseased growth. Remove any superfluous acid; dress with dry lint (R., Wa.). *Mercuric Nitrate*, locally (R.). *Silver Nitrate*, as caustic, but is usually too superficial (R.). *Dermal Curette*, is much used in Vienna to remove warts by enucleation. *Strangulation*, by tying a string tightly around the base, will cause them to drop off in a few days. *Heat*, is a most thorough measure for their radical removal; it may best be applied by touching the wart 3 or 4 times daily with the hot end of a cigar; the first few applications only give pain. *Caustic Alkalies*, locally (R.); a saturated solution of potassa fusa, carefully applied by a brush or sponge fastened to the end of a stick, is to be preferred (E. Wilson). [Compare CONDYLOMATA.]

Wen.

Extirpation, the least troublesome and most speedily effective method. Run a scalpel through it, seize the cut edge of the cyst, and gently tear it out with a touch or two from the knife. Dressing of lint and carbolic oil to cause suppuration and contraction (D.).

Worms.

Filix Mas, *Brayera* (*Kousso*), *Rottlera* (*Kamala*), *Pepo*, *Granati Fructus Cortex*, as tæniafuges (B.). *Filix Mas* to be taken on an empty stomach, for tape-worm, and followed by a purge (R., P.). *Pepo*, ℥ij as emulsion, taken fasting, one of the most efficient remedies against tænia (B.). *Santonin*, the best anthelmintic; laxative in morning, fasting all day, a dose (gr. ss–v) of santonin and calomel, or troches of santonin (j–x), at bedtime, a senna draught next morning. For ascarides (B., P.). For round and thread-worms, in castor oil by mouth, or as injection (R.). *Iron*, the Syrup of the Iodide internally and a solution of the tincture locally, for ascarides (B.); the tincture ferri sesquichlor. ℥ss ad Oj aquæ, a good injection for thread-worms; coagulates albumen (R.). *Quassia*, the infusion an effectual injection, conjoined with simple bitters internally, for ascarides (R.). *Pelletierine*, the alkaloid of Granatum, is by far the best vermifuge for a tape-worm, repeated after a week for a second worm, as many as 3 having been found in one patient (Da C.); gr. xv–xx of the tannate, followed in a few hours by Castor Oil (R.). *Chloroform*, a very efficient tæniafuge, ʒj in ℥j of mucilage, after 20 hours' fasting, followed one hour later by ℥j of Castor Oil; this is an adult dose, ʒj should never be exceeded (Wilde). *Lime Water*, as injection for thread-worms (R.); ℥iij–iv repeated, for ascarides (Wa.). *Sodium Chloride*, in ʒss doses on empty stomach, expels ascarides and prevents reproduction (Wa.). *Quinine*, as a tonic; also cold sponging, out-door exercise and judicious diet. Useful probably by preventing the production of the abundant mucus which favors the growth of worms (R.); especially useful for ascarides; also as injection for thread-worms and tænia (Wa.). *Ignatia*, for convulsive symptoms (P.). *Kamala* (*Rottlera*), excellent for tænia, requires no purge (P.); gr. cl–clxxx for an adult (Wa.). *Eucalyptus*, as injection, for ascarides (B.). *Aloes*, are efficacious for ascarides (P.). *Ailanthus*, decoction of fresh bark, for tænia (B.). *Tonics*, as cod-liver oil and iron to restore intestinal canal to healthy condition (R.). *Turpentine*, as poison to tape and thread-worms (R.); also for tænia (Wa.). *Scammony*, for thread-worms in rectum (R.); with calomel, effective (Wa.). *Tannin*, as catechu, kino, red-gum, rhatany, hæmatoxylum, in injections to destroy thread-worms (R.). *Alum*, as solution for injection (R.). *Ammonium Chloride*, to prevent formation of thick mucus which serves as nidus for worms (R.). *Valerian*, especially when convulsions (R.). [Compare the List of Anthelmintics on page 40.]

Prescriptions.

℞. Chloroformi,
Ext. Filicis Maris, . . āā ʒj.
Emuls. Ol. Ricini (50 per cent.), ... ℥iij.
M. Sig.—One dose after 24 hours' fasting. Does just as well if Male Fern be omitted. (*Smith.*)

℞. Ext. Spigeliæ Fl., ... ℥j.
Ext. Sennæ Fl., ... ℥ss.
M. Sig.—A teasp. to a child of 3 to 5 years. (*Smith.*)

℞. Ext. Spigeliæ et Sennæ Fl., ℥j.
Santonini, ... gr. viij.
M. Sig.—A teasp. to a child of 5 years. (*Smith.*)

℞. Granati Corticis, ... ℥ij.
Ft. infusum. Sig.—To be taken before 11 A.M.—and followed after 2 hours by—

℞. Ol. Ricini, ... ℥iij.
Ol. Terebinth., ... ʒj.
Ext. Filicis Maris Æther., . ʒj.
M. ft. haustus.
Fasting unnecessary. (*Wilde.*)

℞. Magnesii Sulphat., ... ℥ij.
Sodii Chloridi, ... ℥ss.
M. Sig.—A fluid ounce in half a glass of water, with gtt. v of Carbolic Acid, night and morning, for ascarides. Persevere. (*Barkley.*)

Wounds.

Arnica, very useful for external bruises and cuts, also for internal injuries; unites surfaces very rapidly after amputations. The infusion or decoction best (P.); very effectual (Wa.). *Aconite*, valuable in surgical fever (P.). *Carbolic Acid*, solutions check suppuration, and correct fetor (B.). The "antiseptic" treatment of wounds (Lister), especially surgical wounds. See Ag. vol. 1, page 187. *Bismuth Subiodide*, dusted into a wound, one of the most efficient antiseptics, non-irritant, and a prompt stimulant of granulation. An excellent dressing for wounds after approximation of the edges, the powder to be dusted thickly over the edges, and thoroughly smeared with Flexible Collodion (Potter). *Sulphurous Acid*, in solution, diluted or not, constantly applied (R.); in solution or by fumigation, is regarded by some as superior in efficacy to carbolic acid, and less irritant (Wa.). *Salicylic Acid*, Thiersch prefers to Carbolic; may be applied pure in powder to gangrenous and sloughing wounds (B.). *Mercury*, the bichloride, gr. vijss to quart j of hot water, stirred with a stick, makes a solution of 1 to 2000; the best of all antiseptics for washing a wound or cavity, and for saturating the dressings. See List of Antiseptics on page 51. *Boracic Acid*, also applicable as Carbolic Acid (B.). *Balsam of Peru*, excellent for closing recent wounds (P.). *Benzoin*, the basis of healing "balsams" (P.). *Aloes*, topically as a slight stimulant; often purges (R.). *Gum Tragacanth*, a thick aqueous solution to granulating surfaces, to protect them from the air (Wa.) *Opium*, to quiet intestinal movements in wounds of the abdomen (R.); forwards the reparative processes (P.). *Tannin*, or glycerin of tannin to coat over wounds (R.). *Collodion or Liquor Gutta-perchæ*, to secure primary union of incised wounds (B.); as protective covering (P.). *Iodoform*, powdered and dusted over sloughing wounds, irritable and ill-conditioned ulcers, sores (B.). Iodoform 1, Collodion 9 parts, painted on a superficial wound while edges are held together (Gross); may be painted over edges when stitched together: gives excellent results. *Galvanic Couplet*, to wounds of indolent form (B.). [See BEDSORES.] *Nitric Acid*, as escharotic for gangrene (B.). *Turpentine*, one of the most efficient applications in hospital gangrene (B.). *Aloes*, pulverized fine, as a dressing for wounds, favoring cicatrization and closing them, also relieving the pain at once; requires removal only at long intervals (Millet). *Poultices*, are often abused. Yeast or Charcoal best for foul wounds (B.). *Alcohol*, an excellent antiseptic dressing when suppurating; also favors cicatrization of open wounds (B.). *Water*, in universal use as dressing. Cold water often abused. Hot-water dressing as advocated by Hamilton, of New York, promises better results (B.). *Turkish Baths*, for pain in the seat of old wounds (R.). *Ice and Salt* applied to wound prevents inflammation (R.). [Compare HEMORRHAGE, INFLAMMATION, PYÆMIA, SURGICAL FEVER, GANGRENE, ULCERS.]

Prescriptions.

℞. Acidi Tannici, ... ℥ij.
Alcoholis Absolut., ... ℥ss.
Ætheris, ... ℥ijss.
Collodii, ... ʒxij.
M. Sig.—Styptic Colloid.

℞. Collodii, ... ℥j.
Olei Ricini, ... ℥ss.
Acidi Carbolici, ... ʒss.
M. Sig.—Carbolized Collodion, for wounds.

Yellow Fever.

Treatment must all be done at the beginning, no time to be lost. Cold sponging early and frequently repeated. Calomel, Quinine and Salines at the start. Potassium Acetate for the kidneys. Morphine for gastric irritation, the feet to be in mustard water (Da Costa). *Diaphoretics* and *Diuretics*, also *Laxatives*, are very important throughout the disease (Da Costa). *Pilocarpine*, in dose of gr. ¼ hypodermically, in first stage, carried to the induction of emesis and catharsis, as well as that of diaphoresis, the most efficient treatment known, absolutely jugulating the paroxysm (Habersmith). *Mercury*, a calomel purgative, gr. xx, 2 or 3 times on the first day, followed by a warm-water enema, is good treatment (B.); has many advocates, and many opponents (Wa.); should generally be abstained from (S.). *Duboisine*, gr. $\frac{1}{60}$, subcutaneously, the most efficient hypnotic and calmative (B.). *Turpentine*, when cardiac weakness, depression of vaso-motor system, dissolved state of the blood; ♏x–ʒss; small doses, with tinctura ferri chloridi, in hemorrhagic form (B.). *Quinine*, has some strong evidence in its favor as an abortive agent, one large dose (gr. xxx–xl) with opium at outset (Wa.); is not a specific; may hasten recovery in mild cases (S.); gr. xx per rectum, to reduce temperature (B.). *Liquor Calcis*, with milk, has been found efficient for the vomiting (Wa.). *Capsicum*, to obviate the black vomit, is highly spoken of (Wa.). *Cocaine*, for the vomiting, nothing equals it in efficiency, it also acting as a diuretic, 10-minim doses of a 4 per cent. solution, by mouth, every hour for 2 or 3 doses, acts like a charm (Jennings). *Chloroform*, for the vomiting, a few drops to prepare the stomach for reception and retention of food; effects transitory, has to be repeated before each meal (Wa.); the Ammoniated Chloroform in zymotic pyrexia; its action is sedative, analgesic and antipyretic (Richardson). *Carbolic Acid*, by stomach and hypodermically, remarkably efficacious, even after the ominous "coffee-grounds" vomit (Lecaille). *Chlorodyne*, is excellent for restlessness, insomnia, irritability of stomach (A.). *Veratrum Viride*, gtt. j–x hourly, according to age, till pulse and temperature subdued; successfully used in connection with mercury, etc. (White and Ford). *Stimulants*, only in typhus form (B.); in 3d stage must be bold, prompt and continued (Da C.). *Diet*, of the blandest description (A.); milk and lime-water, half and half, in small quantities, is the best aliment. In convalescence, the utmost care is necessary in giving aliments (B.). Rest is very important (Da C.). *Iced Champagne*, in tablespoonful doses every ¼ hour, for the vomiting (B.). *Purgation*, throughout the disease (Da C.). [Compare REMITTENT FEVER.]

Prescriptions.

℞. Potassii Carbonat., ... gr. xx.
Tinct. Opii Camphorat., . . ℥j.
Aquæ, ... ℥viij.

M. Sig.—℥j every hour or two, as a diaphoretic. (*Dickson.*)

℞. Chloroformi,
Tinct. Camphoræ, ... āā ℥ss.

M. Sig.—Two drops as required for the vomiting.

APPENDIX.

LIST OF LATIN WORDS, PHRASES, ETC., USED IN WRITING PRESCRIPTIONS; WITH THEIR CONTRACTIONS, AND THE CORRESPONDING ENGLISH EQUIVALENTS.

Word or Phrase.	Contraction.	English Equivalent.
Abdomen	Abd.	The belly.
Absente febre	Abs. feb.	Fever being absent.
Accurate	Acc.	Accurately.
Ad	Ad	To, *or* up to.
Ad duas vices	Ad 2 vic.	At twice taking.
Ad secundum vicem	Ad sec. vic.	To the second time.
Ad tertiam vicem	Ad 3 tiam vic.	For the third time.
Adde	Add.	Add.
Addantur	Add.	Let (them) be added.
Addendus	Add.	To be added.
Addendo	Add.	By adding.
Ad defectionem animi	Ad def. an.	To fainting.
Ad gratam aciditatem	Ad grat. acid.	To an agreeable sourness.
Adhibendus	Adhib.	To be administered.
Adjacens	Adjac.	Adjacent.
Ad libitum	Ad lib.	At pleasure.
Admove	Admov.	Apply.
Admoveatur	Admov.	Let (it) be applied.
Admoveantur	Admov.	Let (them) be applied.
Adstante febre	Adst. feb.	The fever being on.
Adversum	Adv.	Against.
Aggrediente febre	Aggr. feb.	While the fever is coming on.
Agitato vase	Agit. vas.	The vial being shaken.
Aliquot	Aliq.	Some.
Alter	Alt.	The other.
Alternis horis	Alt. hor.	Every other hour.
Aluta	Aluta	Leather.
Alvo adstricta	Alv. adst.	The bowels being confined.
Alvus	Alv.	The belly.
Amplus	Amp.	Large.
Ampulla	Ampul.	A large bottle.
Ana	A. *or* āā	Of each.
Aqua	Aq.	Water.
Aqua astricta	Aq. astr.	Frozen water.
Aqua bulliens	Aq. bull.	Boiling water.
Aqua communis	Aq. com.	Common water.
Aqua fervens	Aq. ferv.	Hot water.
Aqua fluviatilis	Aq. fluv.	River water.
Aqua fontalis	Aq. font.	Spring water.
Aqua fontana *or* fontis	Aq. font.	" "
Aqua marina	Aq. mar.	Sea water.

Word or Phrase.	Contraction.	English Equivalent.
Aqua nivialis	Aq. niv.	Snow water.
Aqua pluvialis, *or* pluviatilis	Aq. pluv.	Rain water.
Aqualis	Aqualis	Pertaining to water.
Aut	Aut.	Or.
Balneum arenæ	B. A.	Sand-bath.
Balneum mariæ, *or* maris	B. M.	Salt-water bath.
Balneum vaporosum, *or* vaporis	B. V.	Vapor-bath.
Balsamum	Bals.	Balsam.
Barbadensis	B. B.	Barbadoes.
Bene	Bene	Well.
Bibe	Bib.	Drink (thou).
Biduum	Bid.	Two days.
Bis	Bis	Twice.
Bis in die, *or* dies	Bis die	Twice a day.
Bolus	Bol.	A large pill.
Bulliat *or* Bulliant	Bull.	Let boil.
Butyrum	But.	Butter.
Cæruleus	Cærul.	Blue.
Calefactus	Calef.	Warmed.
Calomel *or* Calomelas	Cal.	The mild chloride of mercury.
Cape	Cap.	Take (thou).
Capiat	Cap.	Let him take.
Capsula	Capsul.	A capsule.
Caute	Caute	Cautiously.
Charta	Chart.	Paper.
Chartula	Chartul.	A small paper.
Cibus	Cib.	Food.
Cochlear, *or* Cochleare, *or* Cochleatim	Coch., Cochleat.	A spoonful, By spoonfuls (ʒj).
Cochleare amplum	Coch. amp.	A dessertspoonful (ʒij).
Cochleare magnum	Coch. mag.	A tablespoonful (℥ss).
Cochleare medium, *or* modicum	Coch. med. *or* mod.	A dessertspoonful (ʒij).
Cochleare parvum	Coch. parv.	A teaspoonful (ʒj).
Coctio	Coct.	Boiling.
Cola	Col.	Strain.
Colaturæ	Colatur.	To the strained liquor.
Colatus	Colat.	Strained.
Coletur	Colet.	Let it be strained.
Colentur	Colent.	Let them be strained.
Collutorium	Collut.	A mouth-wash.
Collyrium	Collyr.	An eye-wash.
Coloretur	Coloret.	Let it be colored.
Compositus	Comp.	Compounded.
Concisus	Concis.	Cut.
Confectio	Conf.	Confection.
Congius	Cong.	A gallon.
Conserva	Cons.	A conserve, *also* Keep (thou).
Continuantur remedia	Cont. rem.	Let the medicines be continued.
Contusus	Contus.	Bruised.
Coque, Coquantur	Coq.	Boil, let them be boiled.
Coque ad medietatis consumptionem	Coq. ad med. consump.	Boil to the consumption of half.
Coque secundem artem	Coq. S. A.	Boil according to art.
Coque in sufficiente quantitate aquæ	Coq. in S. A.	Boil in sufficient water.

Word or Phrase.	Contraction.	English Equivalent.
ordis	Cor.	The heart.
x, corticis	Cort.	The bark.
	Cox.	The hip.
Crastinus	Crast.	To-morrow.
mane sumendus	Cras mane sumend.	To be taken to-morrow morning.
octe	Cras nocte	To-morrow night.
vespere	Cras vesp.	To-morrow evening.
nus	Crast.	For to-morrow, early.
, Cujus-libet	Cuj.	Of which, of any.
	C.	With.
o theæ	Cyatho theæ	In a cup of tea.
us, *vel* Cyathus vina-	Cyath., C. vinar.	A wine-glass (℥j–ij).
etur	D., det.	Give, let be given.
	De	Of, *or* from.
entur pilulæ	Deaur. pil.	Let the pills be gilded.
a spissitudo	Deb. spiss.	A proper consistence.
us	Deb.	Due, proper.
ata	Dec.	Pour off.
n, Decimus	Decem.	Ten, The tenth.
ctum	Decoct.	A decoction.
bitus	Decub.	Lying down.
e in diem	De d. in d.	From day to day.
vel Deinde	Dein.	Thereupon.
tiatur	Deglut.	Let be swallowed.
tiones alvi	Dej. alv.	Stools.
in duplo	Det. in dup.	Let twice as much be given.
r, Dextra	Dext.	The right.
s alternis	Dieb. alt.	Every other day.
s tertiis	Dieb. tert.	Every third day.
ulo	Diluc.	At break of day.
, Dilutus	Dil.	Dilute (thou), Diluted.
lius	Dim.	One-half.
tione propriâ	D. P., *or* Direct. prop.	With a proper direction.
datur in partes ales	D. in p. æq.	Let it be divided into equal parts.
endus, -a, -um	Divid.	To be divided.
	Dolor	Pain.
c	Donec	Until.
c alvus bis dejicia-	Donec alv. bis dejic.	Until the bowels have been twice evacuated.
c alvus soluta fuerit	Donec alv. sol. ft.	Until the bowels shall be opened.
c dolor nephriticus laverit	Donec dolor neph. exulav.	Until the nephritic pain is removed.
	D.	A dose.
ma	Dr. *or* ʒ	A drachm (60 grains).
te dolore	Dur. dolor.	While the pain lasts.
n (fem.)	Ead.	The same.
eus	Eburn.	Made of ivory.
em	Ejusd.	Of the same.
arium	Elect.	An electuary.
is	Emesis	Vomiting.
a	En.	A clyster *or* enema.
ata	Enem.	Clysters.
	Et	And.
erit	Evan.	Shall have disappeared.
eatur	Exhib.	Let it be exhibited.
de	Ext.	Spread.

Word or Phrase.	Contraction.	English Equivalent.
Extende super alutem mollem	Ext. sup. alut. moll.	Spread upon soft leather.
Extractum	Extr.	An extract.
Fac	F.	Make.
Fiat	Ft.	Let be made (sing.).
Fiant	Ft.	Let be made (pl.).
Fac pilulas duodecim	F. pil. xij	Make 12 pills.
Farina	Farina	Flour.
Fasciculus	Fasc.	A bundle which can be carried under the arm.
Febre durante	Febr. dur.	During the fever.
Febris	Febr.	Fever.
Femoribus internis	Fem. intern.	To the inner thighs.
Fervens	Ferv.	Boiling.
Fac cataplasmatem	Ft. cataplasm.	Make a poultice.
Fiat ceratum	Ft. cerat.	Let a cerate be made.
Fiant chartulæ xij	Ft. chart. xij	Let 12 powders be made.
Fiat collyrium	Ft. collyr.	Let an eye-wash be made.
Fiat emplastrum vesicatorium	Ft. emp. vesic.	Let a blister be made.
Fiat emulsio	Ft. emuls.	Let an emulsion be made.
Fiat enema	Ft. en	Let an enema (an injection for the rectum) be made.
Fiat injectio	Ft. inject.	Let an injection (for the urethra) be made.
Fiat lege artis	F. L. A.	Let it be made by the rules of art.
Fiat massa, et divide in pilulas xij	Ft. mas. div. in pil. xij	Let a mass be made, and divide it into 12 pills.
Fiant pilulæ xij	Ft. pil. xij	Let 12 pills be made.
Fiat pulvis	Ft. pulv.	Let a powder be made.
Fiant pulveres xij	Ft. pulv. xij	Let 12 powders be made.
Fiat pulvis in chartulas xij dividenda	Ft. pulv. in chart. xij div.	Let a powder be made to be divided into xij little papers.
Fiat solutio	Ft. sol.	Let a solution be made.
Fiant suppositoria iv	Ft. suppos. iv	Let 4 suppositories be made.
Fiant trochisci xxiv	Ft. troch. xxiv	Let 24 troches be made.
Fiat unguentum	Ft. ung.	Let an ointment be made.
Fiat venesectio	Ft. venesec.	Let a bleeding be done.
Fictilis	Fict.	Earthen.
Filtra	Filtra	Filter (thou).
Filtram, Filtrum	Filt.	A filter.
Fistula armata	Fistul. arm.	A syringe ready for use.
Fluidus	Fluid., Fl.	Liquid.
Formula	Form.	A prescription.
Frustillatim	Frust.	In small pieces.
Fuerit	Fuerit.	Shall have been.
Gargarysma	Garg.	A gargle.
Gelatinâ quavis	Gelat. quav.	In any kind of jelly.
Gradatim	Grad.	By degrees, gradually.
Grana sex pondere	Gran. vj pond.	Six grains by weight.
Granum, Grana	Gr.	Grain, Grains.
Gramme	Grm.	Gram.
Gratus	Grat.	Pleasant.
Gutta, Guttæ	Gtt.	A drop, Drops.
Guttatim	Guttat.	By drops.
Guttis quibusdam	Gtt. quibusd.	With a few drops.
Harum pilularum sumantur tres	Har. pil. sum. iij	Let three of these pills be taken.

Word or Phrase.	Contraction.	English Equivalent.
Haustus	Haust.	A draught.
Haustus purgans noster	H. p. n.	A purgative draught after my own (formula).
Hebdomada	Hebdom.	A week.
Herba	Herb.	An herb.
Herbarum recentium	Herb. recent.	Of fresh herbs.
Heri	Heri	Yesterday.
Hic, Hæc, Hoc	Hic, Hæc, Hoc	This.
Hirudo	Hirudo	A leech.
Hora	H.	An hour.
Horâ somni	Hor. som.	At the hour of sleep.
Horâ undecimâ matutinâ	Hor. xj matut.	At the eleventh hour of the morning.
Horæ decubitûs	Hor. decub.	At bedtime.
Horæ unius spatio	Hor. j spat.	After one hour.
Horis intermediis	Hor. interm.	In the intermediate hours.
Idem	Id.	The same.
Idoneus	Idon.	Proper.
Imprimis	Impr.	First.
Incide, Incisus	Inc.	Cut (thou), Being cut.
In dies	Ind.	Daily, *or* From day to day.
Infunde	Infun.	Pour in.
Infusum	Infus.	An infusion.
Injectio	Injec.	An injection.
Injiciatur enema	Injic. enem.	Let a clyster be given.
In pulmento	In pulm.	In gruel.
Instar	Instar.	As big as.
Inter	Inter	Between.
Internus, -a, -um	Int.	Inner, *or* Internal.
Intus	Intus	Inwardly.
Jam	Jam	Now.
Julepus, Julepum, Julapium	Jul.	A julep.
Jusculum	Juscul.	A broth.
Juxta	Juxta	Near to.
Kali præparatum	Kal. ppt.	Prepared Potash, or the Carbonate of Potassium.
Lac, Lactis	Lac.	Milk, of Milk.
Lagena	Lag.	A flask, *or* bottle.
Lana	Lana.	Flannel.
Languor	Lang.	Faintness.
Lateri dolenti	Lat. dol.	To the painful side.
Lectus	Lect.	A bed.
Libra	Lb. *or* ℔	A pound.
Linimentum	Linim.	A liniment.
Linteum	Lint.	Lint.
Liquor	Liq.	A solution.
Lotio	Lot.	A lotion.
Macera	Mac.	Macerate.
Magnus	Mag.	Large.
Mane	Mane	In the morning.
Mane primo	Mane primo	In the very early morning.
Manipulus	M. *or* Man.	A handful.
Manus	Manus	The hand.
Massa	Mass.	A mass, *or* pill-mass.
Matutinus	Matut.	In the morning.
Medius	Med.	Middle.
Mensura	Mensur.	By measure.
Mica panis	Mic. pan.	Crumb of bread.

Word or Phrase.	Contraction.	English Equivalent.
Minimum	M. *or* Min.	A minim.
Minutum	Minut.	A minute.
Misce	M.	Mix.
Mistura	Mist.	A mixture.
Mitte	Mit.	Send.
Mittatur	Mit.	Let (it) be sent.
Mittantur	Mit.	Let (them) be sent.
Mitte sanguinem ad uncias duodecim saltem.	Mit. sang. ad uncias xij salt.	Take away blood to **12** ounces at least.
Modicus	Modic.	Middle-sized.
Modo præscripto	Mod. præsc.	In the manner prescribed.
Mora	Mora	Delay.
More dictu	Mor. dict.	In the manner directed.
More solito	Mor. sol.	In the usual manner.
Morturarium	Mort.	A mortar.
Ne trades sine nummo.	Ne tr. s. num.	Do not deliver without the money.
Necnon	Necn.	Also.
Nisi	Nisi	Unless.
Non	Non	Not.
Non repetatur	Non repetat.	Let it not be repeated.
Noc, Noctis	Noc, Noct.	The night, of the night.
Nocte maneque	Noct. maneq.	At night, and in the morning.
Nucha	Nucha	The nape of the neck.
Numero	No.	In number.
Numerus	No.	Number.
Nux Moschata	Nux Mosch.	A nutmeg.
Octarius	O., Oct.	A pint (℥ xvj).
Octavus	Octav.	Eighth.
Octo	Octo	Eight.
Oleum Lini sine igne	Ol. Lini sine ig.	Cold-drawn Linseed Oil.
Oleum olivæ optimum	Ol. O. opt.	Best olive oil.
Omni horâ	Omn. hor.	Every hour.
Omni bihorio	Omn. bih.	Every two hours.
Omni quadrante horæ	Omn. quadr. hor.	Every ¼ hour.
Omni mane	Omni mane	Every morning.
Omni nocte	Omn. noct.	Every night.
Opus	Opus	Need, *or* occasion.
Ovum	Ov.	An egg.
Pannus	Pan.	A rag.
Pars, Partis	Par., Pt.	A part, Of a part.
Partes æquales	Pt. æq.	Equal parts.
Partitis vicibus	Part. vic.	In divided doses.
Parvulus	Parvul.	An infant, A parvule.
Parvus	Parv.	Little.
Pastillus, Pastillum	Pastil.	A Pastille.
Pediluvium	Peduliv.	A foot-bath.
Penicillum camelinum	Penicil. cam.	A camel's-hair pencil or brush.
Per	Per	Through, By.
Peractâ operatio emetici	Peract. operat. emet.	When the action of the emetic is finished.
Per deliquium	Per deliq.	By deliquescence.
Per fistulam vitream	Per fistul. vit.	Through a glass tube.
Pergo, Pergere	Perg.	To go on with.
Phiala prius agitata	P. P. A.	The bottle having been first shaken.
Phiala	Phil.	A vial, *or* bottle.
Pilula	Pil.	A pill.
Poculum	Pocul.	A cup.
Pocillum	Pocill.	A little cup.

Word or Phrase.	Contraction.	English Equivalent.
Pondere	P.	By weight.
Pondus civile	P. civ.	Civil weight (avoirdupois).
Pondus medicinale	P. med.	Medicinal weight.
Pone aurem	Pone aur.	Behind the ear.
Post singulas sedes liquidas	Post sing. sed. liq.	After every loose stool.
Potus	Potus	Drink.
Præparata	Præp.	Prepared.
Primo mane	Primo mane	Very early in the morning.
Primus	Primus	The first.
Pro	Pro	For.
Pro ratione ætatis	Pro rat. æt.	According to the age of the patient.
Pro re nata	P. r. n.	Occasionally. According to circumstances.
Pugillus	Pug.	A pinch.
Pulmento	Pulm.	Gruel.
Pulvis	Pulv.	A powder.
Pulverizatus	Pulvz.	Powdered.
Pyxis	Pyxis	A pill-box.
Quadrans,—antis	Quad.	A quart.
Quantum libet	Q. lib.	As much as you please.
Quantum placet	Q. p.	" " " " "
Quantum vis	Q. v.	" " " " "
Quantum volueris	Q. vol.	" " " " "
Quantum sufficiat	Q. s.	As much as is sufficient.
Quantum satis	Q. s.	" " " " "
Quâquâ horâ	Qq. hor.	Every hour.
Quaque	Qq.	Each, *or* Every.
Quartus	Quart.	Fourth.
Quater	Quater	Four times.
Quatuor	Quat.	Four.
Quibus	Quibus	From which.
Quinque	Quinq.	Five.
Quintus	Quint.	The fifth.
Quoque	Q. q.	Also.
Quorum	Quor.	Of which.
Quotidie	Quotid.	Daily.
Ratio	Ratio	Proportion.
Recens, -entis	Rec.	Fresh.
Recipe	℞	Take.
Redactus in pulverem	Red. in pulv.	Let it be reduced to powder.
Redigatur in pulverem	Redig. in pulv.	" " " "
Regio umbilici	Reg. umbil.	The umbilical region.
Reliquus	Reliq.	Remaining.
Repetatur	Rept.	Let it be repeated.
Repetantur	Rept.	Let them be repeated.
Respondere	Respond.	To answer.
Retinere	Retin.	To keep.
Saltem	Saltem	At least.
Saturatus, -a, -um	Sat.	Saturated.
Scatula	Scat.	A box.
Scilicet	Scil.	Namely.
Scrupulum	Scrup. or ℈	A scruple (20 grains).
Secundum artem	S. A.	According to art.
Secundum naturam	S. N.	According to nature.
Secundus	Secund.	Second.
Sedes	Sed.	The alvine evacuation.
Semel	Semel	Once.
Semis, *or* Semissis	Ss.	A half.

Word or Phrase.	Contraction.	English Equivalent.
Semi-drachma	Semidr.	Half a drachm.
Semi-hora	Semih.	Half an hour.
Septem	Sept.	Seven.
Septimana	Septim.	A week.
Sesuncia	Sesunc.	An ounce and a half.
Sesquihora.	Sesqh.	An hour and a half.
Sex	Sex	Six.
Sextus	Sext.	Sixth.
Si	Si	If.
Signa	Sig.	Write, *or* Mark (thou).
Signatur nomine proprio	Sig. nom. prop.	Let it be written upon with its proper name.
Simul	Simul	Together.
Sine	Sin.	Without.
Singularum	Sing.	Of each.
Singulorum	Sing.	Of each.
Si non valeat	Si. non val.	If it does not answer.
Si opus sit	Si op. sit	If necessary.
Si vires permittant	Sir vir. perm.	If the strength will bear it.
Sit	Sit	Let it be.
Solus	Sol.	Alone.
Solve	Solv.	Dissolve.
Solvo, Solvere	Solv.	To dissolve.
Solutus	Solut.	Dissolved.
Somnus	Somnus	Sleep.
Spiritus, –ûs	Spt.	Spirit.
Spiritus vini rectificatus	Spt. vin rect.	Rectified spirit of wine (*i. e.* Alcohol).
Spiritus vini tenuis	Spt. vin. ten.	Proof spirit.
Spiritus vinosus	Spt. vinos.	Ardent spirit (of any strength).
Statim	Stat.	Immediately.
Stet, *or* Stent	St.	Let it (or them) stand.
Stratum superstratum	S. S. S.	Layer upon layer.
Subactus	Subact.	Subdued.
Sub finem coctionis	Sub fin. coct.	When the boiling is nearly finished.
Subinde	Subind.	Frequently.
Sumat talem	Sum. tal.	Let him take one like this.
Sume	Sum.	Take.
Sumat	"	Let him take.
Sumatur	"	Let it be taken.
Sumantur	"	Let them be taken.
Sumendus	"	To be taken.
Summitates	Summit.	The summits.
Superbibendo haustum	Sup. bib. haust.	Drinking afterwards this draught.
Supra	Supra	Above.
Syrupus, –i	Syr.	Syrup.
Tabella	Tab.	A lozenge.
Talis	Tal.	Such a one.
Tempori dextro	Tempor. dext.	To the right temple.
Tempus, –oris	Temp.	Time, *or* Temple.
Ter	Ter	Thrice, *or* Three times.
Ter in die, *or* Ter die.	T. i. d., *or* T. d.	Thrice daily.
Tere	Tere	Rub.
Tere simul	Tere sim.	Rub together.
Tero	Tero	I rub.
Tertius	Tert.	Third.
Tinctura	Tinct. *or* Tr.	Tincture.

Word or Phrase.	Contraction.	English Equivalent.
cturæ Herbarum Recentium	Tinct. Herb. Recent.	Tinctures of Fresh Herbs.
s	Tres	Three.
duum	Trid.	Three days.
tura	Trit.	Triturate.
schicus, Trochisci	Troch.	A lozenge or troche, Lozenges or troches.
ssis	Tus.	A cough.
imo (*or* Ultima) præscriptus	Ult. præsc.	The last ordered.
a	Una	Together.
cia	Unc. *or* ℥	An ounce.
dictum	Ut dict.	As directed.
ndum	Utend.	To be used.
, Uti	Uto, Uti.	To make use of.
s vitreum	Vas vit.	A glass vessel.
hiculum	Vehic.	A vehicle, or menstruum.
	Vel	Or.
æsectio brachii	Venæsec. brach.	Bleeding in the arm.
sper, -eris	Vesp.	The evening.
es	Vic.	Turns.
um	Vin.	Wine.
es	Vir.	Strength.
ellus	Vitel.	Yolk.
ello ovi Solutus	Vitel. ovi Sol.	Dissolved in the yolk of an egg.
ellus ovi	Vitel. ovi	Yolk of egg.
reum, Vitrum	Vitr.	Glass.
mitione urgente	Vom. urg.	Vomiting being severe.

TE.—For the dangerous abbreviations, see *ante*, page 443, under the title PRE-
PTION WRITING.

PRONUNCIATION.

tention is particularly directed to the accentuation of words commonly mispronounced;
r example, acètas, átropa, chimáphila (*kima*), chlòridum, codèia, conìum, énema,
lum, radìcis, rìcinus, sinàpis, syrùpus, éczema, umbilìcus, abdòmen, brómidum.

VERBS.

e Verbs used in prescription-writing are nearly all in the imperative mood, giving
tions to the compounder, and having their object in the accusative case. Such are—

Adde, add.
Cola, strain.
Divide, divide.
Extende, spread.
Fac, make.
Filtra, filter.
Macera, macerate.
Misce, mix.
Recipe, take.
Signa, write.
Solve, dissolve.
Tere, rub.

few verbs are found in the subjunctive mood, taking their subject or predicate in the
inative case. The most usual are—

Fiat, let be made.
Fiant, let be made.
Coletur, let be strained.
Coloretur, let be colored.
Sumatur, let be taken.
Bulliat, let boil.
Capiat, let take.
Detur, let be given.
Dividatur, let be divided.
Sit, let it be.

PARTICIPLES.

Participles or Verbal Adjectives are occasionally used, and should agree with their respective nouns in gender, number and case. Such are the following, viz.—

Dividendus, -a, -um, to be divided.
Sumendus, -a, -um, to be taken.
Adhibendus, -a, -um, to be administered.

PREPOSITIONS.

Those in the first column require the noun following to be in the accusative case,—those in the second column require the ablative case.

Ad, to, up to.	*Cum*, with.
In, into.	*Pro*, for.
Supra, upon.	*Sine*, without.

Ana, of each,—governs the genitive case.

SUNDRY WORDS AND PHRASES, IN MOST FREQUENT USE.

Bene, well.
Bis, twice.
Dein, thereupon.
Et, and.
Gradatim, gradually.
Guttatim, by drops.
In dies, daily.
Da, give.

Non, not.
Numerus, number.
Octarius, a pint.
Semel, once.
Simul, together.
Statim, at once.
Ter, thrice.
Quater, four times.

Ad saturandum, to saturation.
Numero, to the number of.
Quantum sufficiat, as much as necessary.
Pro re natâ, according to need.
In partes æquales, into equal parts.
Redactus in pulverem, let be pulverized.
Secundum artem, according to art.
Non Repetatur, let it not be repeated.

GENITIVE CASE ENDINGS, ETC.

NOM.	GEN.	EXCEPTIONS.
a	æ	Cataplasma, Enema, Physostigma, Aspidosperma and Gargarysma. all have the genitive in *-atis*. Coca is unchanged, though the genitive Cocæ is written by some authorities. Folia is plural, gen. Foliorum.
us um os on	i	Rhus, Rhois; Flos, Floris; Bos, Bovis; Limon, Limonis; Erigeron, -ontis. Fructus, Cornus, Quercus, Spiritus, Haustus, Potus, do not change, being of 4th declension.
as	atis	Asclepias, -adis; Mas, Maris.
is	idis	Pulvis, -eris; Arsenis, -itis; Phosphis, -itis; Sulphis, -itis, and all salts ending in -is, have genitive in -itis.
o	onis	Mucilago, -inis; Ustilago, -inis; Solidago, -inis.
l	lis	Fel, Fellis; Mell, Mellis; Sumbul, Sumbuli.
en ps rs r x	inis pis rtis ris cis	*Words which do not change in the Genitive.* *Amyl. Catechu. Digitalis. Kino. Azedarach. *Coca. Fructus. Matico. Berberis. Cundurango. Haustus. Quercus. Buchu. Cornus. Hydrastis. Sassafras. Cannabis. Curare. Jaborandi. Sago. Sinapis. Potus. Spiritus. * But some authorities give Apiolum, -i; Sumbul, -i; Amyl, Amylis; Coca, -æ.

HYPODERMIC FORMULÆ.

Apomorphine.

℞. Apomorphinæ Muriat., . . gr. j.
Div. in pulv. xvj. One to four in ♏xx of water as required.

Aqua-puncture.

℞. Aquæ Destillatæ, ... ℥j.
Sig.—ʒss–ʒj as an injection.

Arsenic.

℞. Liq. Potassii Arsenitis, q. s.
Sig.—♏ij–x, hypodermically.

℞. Liq. Arsen. et Hydr. Iodidi, q. s.
Sig.—♏v–xx, hypodermically.

Amyl Nitrite.

℞. Amyli Nitrit., ... ʒj.
Sig.—♏iij–v at a dose, which may be repeated in ½ an hour if necessary.

Atropine.

℞. Atropinæ Sulphatis, . . . gr. ij.
Aquæ Destillatæ, ... ℥j.
Solve. Sig.—For hypodermic use, ♏iij = gr. $\frac{1}{80}$, ♏ij = gr. $\frac{1}{120}$.

Caffeine.

℞. Caffeinæ Citratis, ... gr. xxiv.
Aquæ Destillatæ, ... ℥j.
Solve. Sig.—♏xx contain gr. j.

Carbolic Acid.

℞. Ac. Carbol. Purif., ... gr. x.
Aquæ Destil., ... ℥j.
M. Sig.—♏viij contain gr. ⅙ of the acid, which may be given up to gr. ij or iij.

Chloral.

℞. Chloralis Hydratis, . . . ʒiv.
Aquæ Destil., ... ℥j.
M. Sig.—♏xxx contain gr. xv of Chloral Hydrate.

Chloroform.

℞. Chloroformi Purif., . . . ℥ss.
Sig.—♏v–xv can be used as one deep injection. (See *ante*, page 623.) The spirit is safer, in somewhat larger doses.

Coniine.

℞. Coniinæ Hydrobromat., . . gr. j.
Aquæ Destillat., ... ℥j.
M. Sig.—♏x contain gr. $\frac{1}{48}$.

Cocaine.

℞. Cocainæ Hydrochlorat., . gr. v.
Aquæ Destillatæ, ... ʒj.
Solve. Sig.—♏vj contain gr. ss.

Curare.

℞. Curaræ (Merck), ... gr. j.
Acidi Acetici, ... ♏v.
Aquæ Destillatæ, . . . *ad* ♏c.
M. et filtra. Sig.—♏x contain gr. $\frac{1}{10}$.

℞. Curarinæ Sulphat., . . . gr. j.
Aquæ Destillat., ... ℥ss.
M. Sig.—♏iv contain gr. $\frac{1}{60}$.

Daturine.

℞. Daturinæ, ... gr. ss.
Aquæ Destil., ... ℥j.
Solve. Sig.—♏iv contain gr. $\frac{1}{240}$. Dose, ♏iv–x.

Digitaline.

℞. Digitalinæ, ... gr. ss.
Alcoholis,
Aquæ Destil., ... āā ʒij.
Solve. Sig.—♏iv contain gr. $\frac{1}{120}$. Dose, ♏iv–viij.

Duboisine.

℞. Duboisinæ Sulphat., . . . gr. j.
Aquæ Destil., ... ℥j.
M. Sig.—♏iv contain gr. $\frac{1}{120}$.

Ergot and Ergotine.

℞. Extr. Ergotæ Fluid., . . . ℥ss.
Filtra. Sig.—Dose, ♏x.

℞. Extracti Ergotæ (Squibb), ʒj.
Aquæ Destillat., ... ℥j.
Solve et filtra. Sig.—♏x contain gr. j. Dose, ♏x–xx.

Eserine.

℞. Eserinæ Hydrochlor., . . gr. j.
Aquæ Destil., ... ʒiv.
Solve. Sig.—♏iv contain gr. $\frac{1}{60}$.

Hydrocyanic Acid.

℞. Acidi Hydrocyan. Dil., q. s.
Sig.—♏iv, a maximum dose.

Hyoscyamine.

℞. Hyoscyaminæ, ... gr. j.
Ac. Sulphur. Dil., ... ♏v.
Aquæ Destil., ... ℥j.
M. Sig.—♏v contain gr. $\frac{1}{96}$.

Mercury.

℞. Hydrarg. Chlor. Corr., . . gr. j.
Aquæ Destillat., ... ℥j.
M. Sig.—♏x contain gr. $\frac{1}{48}$.

℞. Hydrarg. Chlor. Corrosivi,
Ammonii Chloridi, . . aa . gr. iij.
Misce et solve in—
Aquæ Destillatæ, ... ʒjss.
Dein adde—
Albuminis Ovi, ... ʒjss.
Aquæ Destillatæ, ... ʒv.
Filtra, et adde—
Aquæ Destil., ... q. s. *ad* ʒx.
Sig.—♏j contains gr. $\frac{1}{200}$. Dose, ♏iij–x.

℞. Hydrarg. et Sodii Iodidi, . gr. iij.
Aquæ Destillatæ, ... ʒiijss.
Solve. Sig.—♏x contain gr. ¼. Dose, ♏x every second day.

Morphine.

℞. Morphinæ Sulphatis, . . . gr. xvj.
Aquæ Destillatæ, ... ℥j.
Solve et filtra. Sig.—♏vijss contain gr. ¼. (*Magendie's.*)

℞. Morphinæ Sulphatis, . . . gr. xvj.
Acidi Carbolici, ... ♏iij.
Aquæ Destillat., ... ℥j.
Solve et filtra. Sig.—♏vijss contain gr. ¼. (*Antiseptic, Magendie's.*)

Morphine and Atropine.

℞. Morphinæ Sulphatis, . . . gr. xvj.
Atropinæ Sulphatis, . . . gr. ss.
Acidi Carbolici, ... ♏iij.
Aquæ Destillat., ... ℥j.
Solve et filtra. Sig.—♏vijss contain gr. ¼ of Morphine Sulph., and gr. $\frac{1}{120}$ of Atropine Sulphate. (*Potter.*)

℞. Morphinæ Sulphatis, . . . gr. xxiv.
Atropinæ Sulphatis, . . . gr. j.
Ol. Amygdalæ Amar, . . gtt. j.
Aquæ Destillat., ... ℥ij.
Solve. Sig.—♏x contain gr. ¼ of Morphine Sulphate, and gr. $\frac{1}{96}$ of Atropine Sulphate. (*Didama's Solution.*)

Pilocarpine.

℞. Pilocarpinæ Nitratis, . . . gr. xvj.
Aquæ Destillat., ... ℥j.
M. Sig.—♏v contain gr. ⅙.

Potassium Iodide.

℞. Potassii Iodidi, ... ʒj.
Aquæ Fontanæ, ... ʒiv.
Solve. Sig.—Dose, ♏vj–xx.

Quinine.

℞. Quininæ Disulph., ... gr. l (50).
Ac. Sulphurici Dil., . . . ♏c (100).
Ac. Carbolici, ... ♏v (5).
Aquæ Fontanæ, ... ℥j.
Solve. Sig.—ʒj contains gr. vj. (*Lente*). Is irritant. (B.)

℞. Quininæ Hydrobrom., . . gr. xlviij.
Aquæ Destillat., ... ʒiv.
Solve. Sig.—♏xx contain gr. iv.

℞. Quininæ Bimur. Carbamidat.,
Aquæ Destillatæ, ... aa ʒiv.
Solve. Sig.—♏x contain gr. v.

Strychnine.

℞. Strychninæ Sulphat., . . . gr. j.
Aquæ Destillatæ, ... ℥j.
Solve sine alcohol. Sig.—♏x contain gr. $\frac{1}{48}$.

℞. Strychninæ Sulphatis, . . gr. j.
Aquæ Destillatæ, ... ♏ccl.
Solve. Sig.—♏v contain gr. $\frac{1}{50}$. Dose, ♏v–viij.

Notes.—Solutions for hypodermic use should be neutral in reaction, neither acid nor alkaline; and freshly prepared, especially solutions of the alkaloids, which develop a *penicillium*, which grows at the expense of the alkaloid. *Aqua Fontana*, if filtered, is a better menstruum than *Aqua Destillata* which has been kept for a week, and frequently exposed to the atmosphere. To run the least risk of producing a sore at the point of injection, use very fine needles, and deliver the injection into the areolar tissue beneath the skin, instead of into the skin, as lay parties generally do for themselves. I have given injections of Morphine and Atropine to a dying girl 3 and 4 times daily for two months, and never produced a sore. Always force out all fluid, and wipe the needle-point dry between the fingers, before returning it to the case; the sebaceous matter on the fingers keeping it free from rust. There is an area of several inches square, on the upper and exterior aspect of the thigh, just below the great trochanter of the femur, which is remarkably insensible, being sparingly supplied with cutaneous nerves. (See Fig. 307, Gray's *Anatomy*, 10th English edition.) An injection delivered in this area will not be felt by the patient. Avoid puncturing a vein; if you do so, watch the patient and prepare an injection containing gr. $\frac{1}{60}$ of Atropine Sulphate, to administer if dangerous symptoms arise. Never, except under special circumstances, administer the salts of Morphine or Atropine hypodermically to children less than 15 years of age.

CHLORODYNE.

A COMPARISON OF ITS INGREDIENTS, ACCORDING TO TEN FORMULÆ THEREFOR, THE QUANTITIES BEING CALCULATED FOR EACH FORMULA TO A FOUR-OUNCE MIXTURE, OR ♏ 1920.

Articles.		Quantity of each article in a ℥iv mixture as per the formula of									
		Squire, P.*	Smith, Edw.†	Chandler.‡	U. S. Disp.	Nat'l Disp.	P. D. & Co.**	Whitla.¶	Bartholow.	Gilman.	Brit. Phar.††
Morphine Muriate, . . .	gr.	1	16	16	33	33½	14	16	$1\frac{1}{30}$	4⅛	4
Chloroform, ...	♏	236	192	240	372	375	207	240	247	62	240
Chloral, ...	gr.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Ether, ...	♏	59	96	. .	. .	. .	. .	120	62	. .	60
Cannabis Indica, Tinct., .	♏	. .	. .	. .	248	250	207	20	. .	. .	. .
Cannabis Indica, Extr., .	gr.	. .	. .	32	. .	. .	. .	. .	. .	. .	. .
Hydrocyanic Acid, 2 p. c.,	♏	118	192	. .	50	50	42	90	123	62	120
Ol. Menthæ Pip., ...	♏	2	6	16	10	8	7	7	2	. .	2
Capsicum, Fluid Extr., .	♏	. .	. .	4	. .	. .	. .	. .	. .	. .	. .
Capsicum, Tinct., ...	♏	. .	290	. .	. .	37	7	120	. .	62	. .
Capsicum, Oleo-res., . . .	♏	. .	. .	. .	4	. .	. .	. .	. .	. .	. .
Alcohol, ...	♏	236	. .	810	994	1010	690	. .	247	495	240
Hydrochloric Acid, . . .	♏	. .	. .	. .	126	62	. .	30	. .	. .	. .
Sugar, Burnt, ...	gr.	. .	. .	. .	. .	. .	. .	20	. .	. .	. .
Glycyrrhizæ, Extr., . . .	gr.	147	. .	. .	. .	. .	. .	. .	154	. .	240
Acacia, Mixture, ...	♏	. .	384	. .	. .	. .	. .	. .	. .	. .	. .
Tragacanth, Mucil., . . .	♏	. .	. .	. .	. .	. .	. .	903	. .	. .	. .
Theriaca, *or* Syr. Fusci, .	♏	236	760	. .	. .	. .	. .	150	247	. .	240
Syrup, ...	♏	. .	760	. .	. .	. .	. .	. .	992	744	q. s.
Glycerin, ...	♏	1033	. .	818	. .	. .	760	. .	. .	495	. .
Aqua, ...	♏	. .	. .	. .	126	128	. .	240	. .	. .	. .
Total No. of Minims, . .	. .	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920
Adult Dose, ...	♏	5-10	5-30	. .	3-10	5-15	5-30	5-30	5-15	60	5-10
Morphine in ♏xv	gr.	$\frac{1}{128}$	⅛	⅛	¼	¼	$\frac{1}{10}$	⅛	$\frac{1}{128}$	$\frac{1}{32}$	$\frac{1}{32}$

NOTE.—See ante, page 169, for remarks on this preparation, and the number of formulæ representing it.

* Author of "A Companion to the Br. Pharmacopœia."

† See Hartshorne's "Essentials," 5th ed., p. 625.

‡ Made by Eli Lilly & Co., Indianapolis.

¶ 2d ed., page 430.

** Parke, Davis & Co., Detroit.

†† Tinct. Chloroformi et Morphinæ, B. P.

PATENT MEDICINES.

NOTE.—These formulæ have been published from time to time in various journals and formularies, and are supposed to represent the preparations designated. The name of the author is appended in each case when known.

Alcoholic Strength of Quack Bitters.

Hostetter,	43.20
Drake Plantation,	30.24
Rush,	34.20
Peruvian,	22.40
Hoofland,	20.85
Oxygenated,	19.23
California Wine Bitters,	18.20
Walker's Vinegar Bitters,	7.20

Ayer's Ague Cure.

This, according to Churchill's analysis, is alleged to consist of a syrupy tincture of Peruvian Bark with Aromatics, each bottle holding six fluid ounces, and each fluid ounce containing 3.2 grains of amorphous Cinchona alkaloids, 3 grains Cinchonia, 0.7 grains Cinchonidia, 0.8 grains Quinia, and 1 grain of Quinidia.

Ayer's Cherry Pectoral.

℞.

Morphinæ Acetat.,	gr. iij.
Vini Antim. et Potass. Tartrat.,	
Vini Ipecacuanhæ,	āā ʒ iij.
Tinct. Sanguinariæ,	ʒ ij.
Syr. Pruni Virginian.,	℥ iij.

Ayer's Pills.

Consist of Colocynth, Gamboge and Aloes, coated with Starch and Sugar.

Ayer's "Recamier Balm."

Zinc Oxide,	lbs. 5.
Glycerin,	dr. 2.
Alcohol,	oz. 2.
Mercuric Chloride,	oz. 4.
Distilled Water,	qts. 64.

(*Boston Herald.*)

Ayer's "Recamier Cream."

Rice Flour,	oz. 48.
Zinc Oxide,	oz. 60.
Glycerin,	oz. 640.
Cocoa Butter,	oz. 48.
Lard,	oz. 48.
Mercuric Chloride,	oz. 4.

Make 32 pints. (*Boston Herald.*)

Ayer's Sarsaparilla.

Alcohol,	fl. oz. 3.
Fluid Extr. of Sarsaparilla,	fl. oz. 3.
Fluid Extr. of Stillingia,	fl. oz. 3.
Fluid Extr. of Yellow Dock,	fl. oz. 2.
Fluid Extr. of Podophyllum,	fl. oz. 2.
Sugar,	oz. 1.
Iodide of Potassium,	grs. 90.
Iodide of Iron,	grs. 10.

Mix.

Ayer's "Vita Nuova."

Cocaine,	gr. 8.
Pepsin (golden scale),	gr. 48.
Port Wine,	gall. 1.

(*Boston Herald.*)

Brandreth's Pills.

℞.

Podophylli Radicis,	gr. x.
Extracti Podophylli,	gr. x.
Extr. Phytolaccæ Baccæ,	gr. xxx.
Pulv. Caryophylli,	gr. x.
Cambogiæ,	gr. ij–v.
Ol. Menthæ Piperitæ,	♏ iij.
Croci,	gr. ij.

Misce, fiat massa, et div. in pil. xxiv.

(*Hager.*)

Castoria

is a mixture of Senna, Pumpkin-seed, Anise, Levant Wormseed, Rochelle Salts, Sodium Bicarbonate, Sugar, Oil Gaultheria, Oil Peppermint, and Water.

(*Deutsch Am. Apothek. Zeit.*)

"Double Chloride of Gold."

For drunkenness and the opium habit. The composition is said to be as follows:—

℞.

Chloride of Ammonium,	gr. 1.
Aloin,	gr. 2.
Compound Tincture of Cinchona,	fl. ℥ 3.
Water, sufficient to make,	fl. ℥ 4.

Ely's Cream Balm

consists of Vaseline, 1 ounce; Thymol, 3 grains; Carb. Bismuth, 15 grains; Oil Wintergreen, 2 minims. The directions are to dip the little finger into the balm and insert up the nostrils, giving two or three full inhalations. (*Medical Record.*)

Hamburg Tea.

℞. Sennæ Foliorum, ... pt. viij.
Mannæ, ... pt. iv.
Coriandri, ... pt. j.

Hamlin's Wizard Oil.

℞. Spt. Camphoræ, ... ℥ j.
Spt. Ammoniæ,
Olei Sassafras, ... aa ℥ ss.
Olei Caryophylli, ... ʒ ij.
Chloroformi,
Olei Terebinthinæ, . . aa ʒ ss.
Alcoholis, ... *ad* ℥ v.

Helmbold's Buchu.

Said to resemble the genuine.

Short Buchu, ... oz. 9.
Uva Ursi, ... oz. 4½.
Licorice-root, ... dr. 10.

Macerate in 9 pints of boiling water, strain and add—

Caramel, ... oz. 2.
Molasses, ... oz. 8.

Mix well and add—

Cubeb (fluid extract), . . oz. 5.
Alcohol, ... pts. 2.
Peppermint Oil, ... oz. 1.
Water, sufficient to make . pts. 12.

(*Lillard's Prac. Hints and Formulæ.*)

Holloway's Pills.

℞. Aloes, powdered, ... gr. 36.
Jalap, powdered,
Ginger, powdered,
Myrrh, powdered, of each, gr. 18.

Mix.

Hostetter's Bitters.

℞. Sacchari Albi,
Aurantii Corticis,
Calami,
Cinchonæ,
Gentianæ,
Calumbæ, ... aa ℔ j.
Rhei Pulv., ... ℥ iv.
Cinnamomi, ... ℥ ij.
Caryophylli, ... ℥ j.
Alcoholis Diluti, ... Cij.

(*Med. Bulletin*, 1884.)

Laville's Gout Mixture.

Calcium Chloride, Chinoidin, each . . . . . . grm. 5.
Extract Colocynth, . . . grm. 2.5
Water, ... grm. 85.
Alcohol, ... grm. 100.
Spanish Wine, ... grm. 800.

Made into a solution. A pill of very complicated composition is used in connection with the gout remedy. (*Hager.*)

See also page 185, *ante.*

Morrison's Pills.

Powdered Colocynth, . . gr. 3.
Powdered Gamboge, . . . gr. 6.
Powdered Aloes, ... gr. 9.
Cream of Tartar, ... gr. 12.

Syrup enough for 12 pills. Serious results are often produced by large doses of these pills.

Orange Blossom.

Zinc Sulphate, ... gr. 60.
Alum, ... gr. 15.
Oil Almond Exp., ... gr. 90.
Extract Hyoscyamus, . . gr. 1.
White Wax, ... gr. 30.
Oil Theobroma, ... gr. 180.

Made into oblong suppositories, one inch long, one and a half wide and half an inch thick, weighing 32 grains each.

Perry Davis's Pain Killer.

℞. Tinct. Capsici, ... ℥ j.
Spt. Camphoræ, ... ℥ ij.
Guaiaci Resinæ, ... ℥ ss.
Alcoholis, ... ℥ iij.
Tinct. Myrrhæ, q. s. ad coloret.

Pierce's Favorite Prescription.

℞. Sabinæ, Cinchonæ,
Agarici Albi, ... aa ʒ ij.
Cinnamomi, ... gr. xv.
Coq. in aq. suff., ut ft. decoct. ℥ viij.

Deinde cola, et adde—

Sacçhari Albi, ... ℥ ss.
Acaciæ, ... ʒ j.

Solve, et addantur—

Tinct. Opii Deodorat.,
Tinct. Digitalis, ... aa ʒ ss.
Ol. Anisi, gtt. viij, in Alcoholis, ... ℥ jss.

Misce. (*Hager.*)

Pierce's Golden Discovery.

℞. Ext. Lactuci, ... ʒj.
Mellis, ... ʒj.
Tinct. Opii Deodorat., . . ℥ss.
Alcoholis Diluti, ... ℥iij.
Aquæ, ... ʒiij.
(*Hager.*)

Radam's "Microbe-Killer."

Oil of Vitriol (impure), . . dr. 4.
Muriatic Acid (impure), . dr. 1.
Red Wine, ... oz. 1.
Water, ... gall. 1.
(*Eckels.*)

Radway's Ready Relief.

℞. Tinct. Capsici,
Aquæ Ammoniæ,
Alcoholis, ... aa ℥j.
Linimenti Saponis, ... ℥iij.
M. (*Hager.*)

Radway's Resolvent.

℞. Vini Zingiberis,
Vini Cardamomi, . . . aa ℥iij.
Sacchari Albi, ... q s.
M. (*Hager.*)

Sage's Catarrh Remedy.

℞. Salis Culinaris (Sodii Chlor.), partes xx.
Pulv. Camphoræ, ... part. j.
Acidi Carbolici, ... part. j.
M.—To be dissolved in water and either injected or sniffed up the nose.

℞. Pulv. Hydrastis Canadensis, partes v.
Pulv. Indigo, ... part. ½.
Pulv. Camphoræ,
Acidi Carbolici, ... āā partes ij.
Sodii Chloridi, ... partes L.
M. (*New Remedies.*)

Sanford's Catarrh Cure.

According to an analysis made by Prof. A. B. Lyons for the *New Idea*, this preparation is composed of distilled extract of Witch-hazel, containing a little Alcohol and Glycerin and some Morphine. The proportions of the constituents were not determined. (*Nat. Druggist.*)

St. Jacob's Oil.

Said to be composed as follows:—

Sulphuric Ether, ... oz. 3.
Oil of Turpentine, ... oz. 50.
Oil of Origanum, ... oz. 3.
Oil of Lavender, ... oz. 1.
Alkanet Root, sufficient to color.

St. Jacob's Oil—*Continued.*

Another, perhaps more nearly correct:—

Gum Camphor, ... oz. 1.
Chloral Hydrate, ... oz. 1.
Chloroform, ... oz. 1.
Sulphuric Ether, ... oz. 1.
Tincture of Opium, ... oz. ½.
Oil of Origanum, ... oz. ½.
Oil of Sassafras, ... oz. ½.
Alcohol, ... gal. ½.

Dissolve the Gum Camphor in the Oils and Alcohol, then add the other ingredients.

Squibb says that it is a weak Aconite Liniment, also containing Ether, Alcohol, Turpentines, red coloring matter, and water. (*Ephemeris*, p. 114.)

Swift's Specific "S. S. S."

Fluid Extr. of Smilax Sarsaparilla, 16 parts.
Fluid Extr. of Stillingia Sylvatica, 16 parts.
Fluid Extr. of Lappa Minor, . . 16 parts.
Fluid Extr. of Phytolacca Decandra, ... 16 parts.
Tinct. of Xanthoxylum Carolinianum, ... 8 parts.
(*Registered Pharmacist.*)

Stearns' *New Idea* gives the following: Stillingia, Pokeroot and Sarsaparilla, with Nitrate of Potash and a small quantity of Iron and enough Alcohol to preserve it.

Tamar Indien.

According to the *Report de Pharmacie*, the formula for this preparation is as follows:—

Tamarind (pulp), 450; powd. Sugar, 40; powd. Sugar-of-milk, 60; pure Glycerin, 50 (all parts). Mix and evaporate to the consistence of a soft extract, then add powd. Anise, 10; Ess. Lemon, 3; Tartaric Acid, 3 (all parts). Mix and divide into 100 boluses. Roll in the following mixture: Cream of Tartar, 5; white Sugar, 35; Sugar-of-milk, 35; Tragacanth, 2; Tartaric Acid, 2; powd. Red Sandal, 25 (all parts). Dry and put up in tin foil. (*American Druggist.*)

Thompson's Eye Water.

℞. Sulphate of Copper, . . . gr. 10.
Sulphate of Zinc, ... gr. 40.
Rose-water, ... pints 2.
Tincture of Saffron, . . . drchm. 4.
Tincture of Camphor, . . drchm. 4.
Mix and filter.

Van Buskirk's Sozodont.

℞. Saponis Albi, ... ℥ss.
Alcoholis, ... ℥j.
Aquæ, ... ʒvj.
Glycerini, ... ʒij.
Olei Gaultheriæ,
Olei Caryophylli,
Olei Menthæ Piperitæ,
āā q. s. *ad* saporem grat.
Cocci Cacti, q. s. ad coloret.

℞. Calcis Præcipitat.,
Magnesii Carbonatis,
Iridis Florent. Radicis,
āā p. æq.
M. et trit. (*Hoffmann.*)

Walker's Vegetable Vinegar Bitters.

℞. Aloes Socotrin., ... ʒij.
Guaiaci Resinæ, ... ℥iv.
Sassafras Mucil., ... ℥j.
Aceti, ... ʒij.
Aquæ, ... q. s.
Coque, et ft. decoctum, ad ℥xix,
deinde cola, et addantur—

Walker's Bitters— *Continued.*

Sodii Sulphatis, ... ℥j.
Acaciæ, ... ʒij.
Spt. Anisi, 10 p. c., . . . ℥ij.
Alcoholis, ... ℥j.
M. Dose ʒij. (*Eberbach.*)

Warner's Safe Kidney and Liver Cure.

It is said to be made after a formula of which the following is a close approximation:—

℞. Hepatica (herb), ... oz. j.
Boiling Water, ... pt. j.
Make an infusion; strain and dissolve in it:—
Extract of Taraxacum, . . oz. ½.
Nitrate of Potassium, . . . gr. 320.
Cool and add [the following mixture]:—
Alcohol, ... fl. oz. 2½.
Glycerin, ... fl. oz. 1½.
Ess. of Gaultheria, ... drops 40.
Water enough to make one pint.

This formula is furnished by a correspondent of the *Deutsche-Americanische Apotheker Zeitung* (in No. 5 of 1884).
(*Am. Druggist.*)

THE TREATMENT OF POISONING.

The most energetic poisons are Hydrocyanic Acid, some reptile poisons, Strychnine, and Nicotine. (See pages 67, 288, 381.) Those usually selected for criminal purposes are Arsenic, Colchicum, and Tartarized Antimony, the symptoms of which resemble those of natural disease.

General Principles of Treatment. *Jeaunet's General Antidote.*—℞. Liq. Ferri Sulphatis (sp. gr. 1.45) ℥ijss; Magnesiæ Calcinat. ℥ij; Carbonis Animalis ℥j; Aquæ ℥xx. The ingredients should be kept separate—the solution of the sulphate in one vessel, the others together. When needed, the former should be added to the latter and violently agitated. Dose, ℥jss to ℥iij. This is a perfect antidote to Arsenic, Zinc, Digitaline, etc. It delays the action of salts of Copper, Morphine and Strychnine, and slightly influences compounds of Mercury. It is valueless for Cyanide of Mercury, Tartar Emetic, Hydrocyanic Acid, Phosphorus, or the caustic Alkalies.

BELLINI, of Florence, considers the *Iodide of Starch* a valuable antidote to alkaline Sulphides, earthy Sulphides, vegetable and caustic Alkalies, and Ammonia. In the first two cases, he considers it superior to all other antidotes.

A fresh mixture of the Sulphide of Iron, Magnesia, and the Sulphide of Sodium, is a perfect antidote for salts of Copper, the Bichloride of Mercury (Corr. Sub.), and the Cyanide of Mercury.

If the nature of the poison is unknown, a harmless yet in most cases effectual antidote is: ℞. Magnesiæ, Carbonis Ligni, Ferri Oxidi Hydrati, āā partes æquales; Aquæ q. s. Give *ad libitum.*

Castile Soap, dissolved in 4 times its bulk of hot water, drunk by the cupful, is one of the best remedies in many cases, especially poisoning with metals, corrosive acids or corrosive vegetable substances. It is injurious in cases of alkali poisoning.

Albumen. White of egg, dissolved in water, is especially useful for metallic substances.

Vinegar, for alkalies, and many narcotics. *Coffee*, made strong (black), in general antidoting narcotic poisons. *Camphor*, the principal antidote to all vegetable poisons, especially the corrosive. *Milk*, *Oil*, *Mucilaginous Substances*, for corrosive acids, and alkalies. *Charcoal*, for Arsenic, Corrosive Sublimate, etc.

Emetics.—Zinc Sulphate is the best (R.); gr. v–ʒss; is non-nauseating. *Apomorphine*, gr. $\frac{1}{16}$ hypodermically, when narcosis prevents administration by stomach. For children, *Antim. Tart.* gr. ½, in a little sweetened water. Use but little water in mixing the antidotes.

Antidote Bag, designed by Martindale of London, contains the following-named articles, labeled with directions for use, viz.—

Dialysed Iron.
Syrup of Chloral.
Chloroform.
Spt. Chloroformi.
Calcined Magnesia.
Spt. Ammoniæ Aromat.
Oil of Turpentine.
Acetic Acid.
Tinct. Digitalis.
Tannic Acid.
Amyl Nitrite.
Zinc Sulphate.
Ipecacuanha.
Potassium Bromide.

Also a Hypodermic Syringe and Solutions therefor of—

Morphine Acetate.
Atropine Sulphate.
Apomorphine.
Pilocarpine Nitrate.
Strychnine Nitrate.

Acids. *Alkalies*, for those least irritating. *Magnesium Oxide*, *Slaked Lime*, chalk, or magnesia; plaster from wall, with water, milk, oil, white of egg. Bland mucilaginous and oily fluids, and poultices (R.). ACETIC.—Magnesia, or its carbonates. ARSENIOUS; see *Arsenic*. CARBOLIC.—Stomach-pump; a strong solution of the official Syrup of Lime. *Magnesium* or *Sodium Sulphate*, up to ℥iij, to form a sulpho-carbolate, is a very efficient antidote. *Atropine* is a good physiological antagonist (B.). Characteristic symptoms, very dark, black urine. When used locally to excess, apply a strong solution of Sodium Carbonate; also as a wash for the mouth, if necessary. CARBONIC; see *Gas*. HYDROCYANIC (Dilute).—♏xl have killed. *Ammonia*, in any form; cold douche; *Calcium or Sodium Chloride*, gtt. xxx–xl, in water; *Aqua Chlori* is the antidote. Inhalations of Chlorine or Ammonia; artificial respiration. MURIATIC, NITRIC, or SULPHURIC.—Albumen, Carbonate of Magnesium, Calcium, Potassium, or Sodium, Chalk, Soap, or whiting, in milk; Oil. No water in Sulphuric cases. OXALIC.—*Calcium Carbonate* the antidote (R.); Magnesium Oxide (R.). Prepared Chalk, plaster from ceiling, or common whiting, made into a creamy paste with a little water. Bland mucilaginous drinks, and poultices to the abdomen. Avoid potash or soda, and all alkaline carbonates. "Salts of Lemon," or of "Sorrel," is Potassium Oxalate, used for removing ink stains; it should be treated as Oxalic Acid.

Aconite (compare *Belladonna*). Stimulants, emetics, Castor-oil or other purgatives; powdered animal Charcoal, in water; coffee. Bland fluids, and poultices, for abdominal irritation. *Digitalis*, to restore heart's action (Fothergill).

Alcohol. [Compare ALCOHOLISM and DELIRIUM TREMENS in Part III.] Cold water smartly sprinkled over face, or cold douche from a height on the head (R.). Stomach-pump; warmth to cardiac and gastric regions, and extremities. Artificial respiration.

Alkaloids. *Tannic Acid*, holds a high place (P.).

Alkalies. *Dilute Acids*, especially Vegetable Acids; fixed oils (R.). *Vinegar* unites with them, producing innocuous acetates (L.).

Alum. Ammonium, or Potassium Carbonates, etc.

Ammonium. (*Common Sources of Danger*, Spt. of Hartshorn, Smelling Salts, Liquor Ammoniæ kept for cleaning purposes by housekeepers.) Vinegar, Lemon-juice, Orange-juice, followed by demulcents. If vapor has been inspired, inhale Acetic or Hydrochloric Acid.

Antimony. Alkalies, Tannin, or strong tea and coffee (R.). Astringent infusions; Magnesium and Sodium Carbonates; milk; large draughts of warm water; emesis by tickling; Magnesia in milk, especially for Chloride of Antimony. Tannic Acid especially valuable (P.).

Arsenic (Arsenious Acid). Gr. ij have been fatal. *Magnesium Bicarbonate*, or other alkalies (R.). *Charcoal* ℥ss, or more (R.). *Magnesium Oxide* (R.). Emesis by *Zinc Sulphate* ʒj (avoid tartar emetic), or by feather tickling. Albumen. Oil and Lime water mixed (Taylor), before and after emesis. Milk or other bland fluids to aid emesis in washing stomach. Castor-oil after emesis. Linseed-tea and Magnesia. *Dialysed Iron* is a good antidote, especially for chronic poisoning. After free emesis, the *Ferri Oxidum Hydratum* (add Liq. Ammon. to Tinct. of Iron); *Ferri Subcarbonate* just as good; ℥ij followed by Ol. Ricini (Leale); or Hydrated Magnesia; or Magnesia and sugar (Carl), as antidotes. Poultices and fomentations over abdomen. Common sources of danger are arsenical wall-papers, arsenic mistaken for "salts" or "magnesia," or adulterated confectionery; Paris Green (Aceto-Arsenite of Copper) taken with suicidal intent.

Barium. Fixed oils; Calcium, Magnesium, Potassium, or Sodium Sulphates.

Belladonna, or Atropine (Compare *Aconite*). *Opium* a direct antidote, gtt. iij–v, or more. Brandy, astringent infusions, Coffee. Cold to head, electricity, flagellation, pepper. *Alkalies*, especially *Magnesium Bicarbonate*, in poisoning by alkaloids (R.). *Ammonia*, breathed into air-passages (R.). *Charcoal*, ℥ss or more necessary (R.). *Physostigma* possibly (R.).

Bees and Insects. Aq. Ammoniæ, solution of Sodium Bicarb., or Chloride, or Carbolic Acid, applied to the wound; or ♏xv of a 2 per cent. solution hypodermically, Liq. Ammon. Acetatis internally. [Compare STINGS, in main Index, Part III.]

Cannabis Indica. Stimulation by Brandy, evacuation of stomach, *Strychnine* and Faradic Electricity are antagonistic, also Lemon-juice freely.

Camphor. Stimulants, as wine, and Opium.

Cantharis. Emesis. No oils, but oleaginous injections into bladder. Warm bath, Camphor, Milk copiously, Broths, Enemata of demulcents, Opium.

Chloral. *Strychnine*, the antidote (R.). Hot bath, or pack, frictions, stimulants, artificial respiration. Coffee, fresh air, warmth over cardiac region. In fact, the treatment of narcotism.

Chlorine. After emesis with warm water, give milk, white of egg, flour and water, or Lime-water; Aqua Ammoniæ.

Chloroform, or Ether. Fresh air, cold affusions, flagellation, coffee, electricity, artificial respiration. *Amyl Nitrite*, as antidote (Schüller). *Atropine*, hypodermically as antagonist to Ether (Amidon in N. Y. Med. Record, May 2d, 1885); is equally efficient in chloroform narcosis, as I have found by experience (Potter). Invert patient, draw tongue well forward with forceps, then compress and relax chest; the position to be maintained until breath and pulse are good (Nélaton). Ice in rectum. Faradization of respiratory muscles. If swallowed, use stomach-pump, then Ammonia and warmth. *Liq. Ammon.* injected (♏x–xl aq.) into veins,—Bartholow says unsuccessfully.

Colchicum. Treatment same as for *Aconite*.

Conium. Alcohol, etc.; external warmth after evacuation from stomach.

Copper. Albumen, gluten, milk, sugar, Potassium Ferrocyanide. No vinegar. In absence of eggs, give a thin paste of flour and water.

Creasote. *Mucilage*, *Oil*, are antidotes. *Ammonia* when great depression.

Digitalis. The treatment is similar to that for *Aconite*. Emetics, brandy, horizontal position; galvanism, in bad cases.

Fish. Capsicum, Chloroform, Potassium Chlorate freely; Liq. Ammon. Acet., Opium.

Gamboge. Potassium or Sodium Carbonate, or Magnesium in milk; mucilaginous drinks, Opium.

Gases. CARBONIC ACID.—Galvanism, Oxygen inhaled; artificial respiration indispensable. Ammonia inhalations. Sponge with brandy or alcohol and water. Open air, horizontal position, clothing removed, cold douche, hot water to feet, stimulants, frictions. Subsequently, warm bed, open windows; Condy's fluid about room; stimulants sparingly; cold acid drinks *ad libitum*. SULPHURETTED HYDROGEN.—*Chlorine Gas*, well diluted with common air.

Gelsemium. Galvanic current, stimulants, Brandy and Cayenne Pepper, warm baths, frictions, hot bricks to feet.

Glass, coarse or in powder,—Much bread in crumbs to envelope it, then emetics.

Gold. Ferric Sulphate, Mucilage.

Hyoscyamus. See *Belladonna*.

Iodine. Starch or flour given in tepid water; white of egg and milk; free emesis, so long as liquid rejected tinges blue a solution of starch. Sodium Bicarbonate.

Iron. Carbonates of Ammonium and Sodium; Magnesia; Mucilaginous drinks.

Lead. Albumen, milk; alkalies especially Magnesium Bicarbonate (R.). Lukewarm drinks, or Sulphates of Sodium or Magnesium, or freshly precipitated Ferric Sulphate (R.). Promote vomiting; stomach-pump (R.). *Sulphuric Acid* and *Magnesium Sulphate*, for the constipation. The cachexia is much relieved by a combination of Sulphate of Quinine, Sulphate of Iron, and dilute Sulphuric Acid (B.). *Potassium Iodide*, gr. xv–xx 3 or 4 times each day (B.); as after-eliminative, in chronic cases (R.). When great pain at defecation give Extr. Belladon., gr. ⅛, Rhei, gr. ij, in pill twice daily (Da Costa). *Alum*, the most effective agent for the colic. [See COLIC for formula.] Or to a pint of boiling milk add 90 grs. of alum, powdered; separate the curd, and sweeten with sugar. Sig.—A wineglassful every hour or two (B.). *Electricity*, in the paralysis (dropped wrist), a slowly-interrupted current until it causes reaction. Cure to be completed by the faradic current (B.). *Strychnine*, in paralysis, gives good results (B.). *Sulphides*, as baths, in chronic form (R.).

Marked Diagnostic Signs.—Drop-wrist (paralysis of extensor muscles); dark-blue line around edges of gums.

Lime. Calcium Chloride. Albumen, mucilaginous drinks, oils, milk, flour, and water. No acids.

Mercury. Gr. iij of Corrosive Sublimate have proved fatal. *Albumen*, Yolk-of-egg, vegetable astringents, gluten, flour, milk; *Potassium Iodide*, as after-treatment. The *Hydrated Protosulphide of Iron*, if given within twenty minutes, is said to be a chemical antidote. *Potassium Iodide*, converts the metal into soluble combinations (B.). *Bismuth*, locally in salivation (B.) *Sodium Sulphite*, locally ʒj–℥j aquæ (B.). *Tannic Acid*, locally, as gargle in salivation. ℞. Acidi Tannici, ʒj. Mel. Rosæ ℥ij. Aquæ ℥vj. M. Gargle (B.). *Belladonna*, to diminish secretion in ptyalism, v–x drops of tincture every 4 to 6 hours (B.). *Hyoscyamine*, for tremor, gr. $\frac{1}{30}$ gradually to $\frac{1}{15}$ (Oulmont). *Alkalies*, Bicarb. of Magnesium best (R.). *Baths*, simple or sulphurous (R.). *Charcoal*, ℥ss or more necessary in poisoning by Corrosive Sublimate (R.). *Cod-liver Oil*, in chronic cases (B.). *Nitric Acid*, gtt. ij of the dilute acid in water ter die; also gargles of lukewarm water, acidulated with same (R.). *Sulphurous Acid*, int. and as gargle (R.).

Mezereum. Albuminous and mucilaginous drinks; milk, oils, and fats; albuminous enemata; cool poultices to abdomen; Opium.

Mushrooms. *Emetics*, if soon after; *Purgatives*, if some time has elapsed. After general treatment, Stimulants, unless inflammatory symptoms present themselves. Poultices to abdomen. Tannic Acid has been recommended.

Opium or Morphine. *Common Sources of Danger.*—Soothing Syrups for quieting of children. (The American Journal of Pharmacy estimates the loss from this cause at 150,000 every year.) Paregoric. Overdosing with Cough-mixtures.

Treatment.—Vegetable astringents; strongest, hot black Coffee. Cold douche, flagellation, artificial respiration, persevered in for hours. Belladonna, Hyoscyamus or Stramonium. Faradism of phrenic nerves; Stimulants. Comp. Tinct. Iodine. Emetics by mouth are usually useless, may be given as enemata; or *Apomorphine*, gr. $\frac{1}{12}$ to $\frac{1}{8}$ as emetic (hypoder. $\frac{1}{16}$), must be administered before narcosis has set in (B.). Stomach-pump probably best, after which Vegetable Acids, to counteract the narcotism. Cream of Tartar and water, Vinegar and water, Lemon-juice, etc., every ten minutes (R.). *Atropine*, gr. ¼–½ hypodermically (R.); gr. $\frac{1}{120}$ every 15 minutes up to three doses (B.); in large amounts till pupil dilates, a successful antagonist (R.). No one is warranted in omitting Belladonna (P.). *Amyl Nitrite*, inhaled, has proved eminently successful in a case in which Belladonna or its alkaloid proved useless to restore the patient. *Ammonia*, as intravenous injection for failure of heart's action from Opium and Chloroform narcosis, etc. (B.); breathed into air-passages (R.). *Potassium Bromide*, controls the disagreeable cerebral effects and vertigo resulting from Opium (R., B.). *Water*, hot water and ice alternately to nape of neck, in stupor of Opium-narcosis (B.). *Copper Sulphate*, as emetic, prompt and effective (B). *Zinc Sulphate*, gr. vj as emetic, well diluted with water (B.). *Effervescent Emetics*, effective but dangerous (B.). *Caffeine*, hypodermat. (B., P.). *Heat*, alternately with cold (B.). *Charcoal*, ℥ss or more (R.).

Phosphorus. Emesis by Cupric Sulphate; Magnesia in Linseed-tea; Carbo Animalis; mucilaginous drinks; Liquor Calcis. Avoid all oleaginous mixtures. Poultices to epigastrium. *Sulphate of Copper*, the best emetic, combining to form the less active phosphide (B.). *Turpentine* emulsion with hydrated Magnesia, freely (B., R.); ♏xxx in mucilage, every ¼ hour, excellent (P.). *Transfusion*, has been employed to repair blood (B.).

Physostigma. Minimum fatal dose, grain $1\frac{2}{10}$. *Chloral*, the antidote (R.), if administered very early. *Belladonna*, gr. $\frac{1}{50}$ to $\frac{1}{30}$ Atropinæ, hypodermically, repeated until effects are evident. The nine-thousandth of a grain of Atropine, injected five minutes before giving a minimum fatal dose of physostigma, prevents its fatal effects (R.).

Picrotoxine, or Cocculus Indicus. *Chloral*, the antidote (B.).

Potassium Salts. POTASSIUM BROMIDE. *Nervous Stimulants*—Brandy, Opium. POTASSIUM NITRAS (Saltpetre),—No chemical antidote. Emetics and stomach-pump, demulcent drinks, Opium, milk, aromatics, emollient enemata.

Quinine. Emetics and cathartics, Opium, Coffee, Brandy, or wine, diuretics and sudorifics as after-eliminatives.

Reptiles. (Compare *Stings*.) Ligate limb above wound; cleanse thoroughly, and cauterize with mineral acids or strong Carbolic. The wound should be forcibly sucked by a person with perfect mucous surface. Internally, *Arsenic*, when rapid prostration (R.); Ammonium, diaphoretics, Sodium Bisulphate, Whiskey, largely. *Agave Americana.* ℞. Potas. Iodidi gr. iv, Hydrarg. Chlor. Corr. gr. ij, Bromi ʒ v, Aquæ ʒ j; gtt. x in ℥ ¼ of Brandy; repeat if necessary (Hammond). *Ammonia*, by intra-venous injection, is shown to be unavailing by Brunton and Fayrer (B.).

Rhus (Poison Oak or Ivy),—*Carbolic Acid*, locally, a 5 per cent. sol. *Sulphide of Potassium*, baths, ℥ j to Cxx. *Lobelia*, as infusion, ℥ j ad Oj, a good application locally. *Grindelia*, the fluid extract, 1 part to 10 of water, as lotion; may be used undiluted. *Cocaine*, a 10 per cent. oleate, or a 5 per cent. solution in water, as a local application, promptly relieves the symptoms. Acetate of Lead, ʒ ij, Ammonii Chloridi (crude) ℥ ss, Aquæ ℥ viij, as lotion on cloths constantly wetted therewith, used with uniform success (Burns). *Soapsuds* and water, hot, frequent washing with this the surest, speediest, and best treatment (Couch).

Silver Nitrate. *Alkalies*, especially the Magnesium Bicarbonate (R.). *Sodium Chloride*, largely diluted effects a double decomposition, precipitating the silver as the harmless insoluble chloride (R.). The resulting irritation may be allayed by milk, which should serve as food until the stomach is restored.

Silver, Metallic. Albumen, Milk.

Stramonium. See *Belladonna*.

Strychnine or Nux Vomica. Fatal dose of strychnine gr. ½ for adult, gr. $\frac{1}{16}$ for child. *Chloral*, the antagonist, especially when given soon. *Physostigma*, as an antidote (R.). *Chamomile Oil*, remarkably subdues reflex excitability in frogs after poisoning by Strychnine or Brucine (P.). *Tobacco*, a good antagonist. The *Stomach-pump*, if available before tetanic symptoms. *Animal Charcoal*, largely; Tannin freely; Solution of Iodine. *Chloroform Inhalations*, injections of Curare, or Urethan, or Methyl and Ethyl compounds of Strychnine, Brucine, or Thebaine. Artificial respiration; fats; *Nitrite of Amyl*, inhaled; Magnesia (R.). Tube into œsophagus, and flexible catheter into larynx (R.). *Veratrum Viride* has cured a bad case; a teasp. was given at once, then gtt. ij every 10 minutes (R.). Ice to spine. Tobacco enemata. Lobelia, Potassium Bromide, Monobromated Camphor, hot bath. *Valerian* mitigates the spasms (P). *Curare*, warmly recommended, but its claims are doubtful (P.). *Nicotine*, many cases prove its curative power (P.).

Tin. Albumen, Ammonium and Sodium Carbonates, Milk.

Tobacco. Strong Coffee and Brandy; warmth and friction; artificial respiration.

Vegetable Poisons. Generally albuminous or mucilaginous drinks, oils, etc. Stimulants, *Opium*, ice; cool poultices and fomentations to abdomen.

Veratrum Viride. Digitalis, *Opium*, Stimulants.

Zinc. Albumen, mucilaginous drinks, milk, Tannin. *Potassium and Sodium Carbonates*, if given early. Soapsuds given freely. Warm water in copious draughts.

DIFFERENTIAL DIAGNOSIS.

Forms of Bright's Disease.

Compared with Acute Nephritis and with each other.

	Clinical Phenomena.	Acute Nephritis.	(1) Acute Bright's Disease. Acute Parenchy. Nephritis.	Chronic Bright's Disease.			
				(2) Chron. Parenchy. Nephritis (*Large White Kidney*).	(3) Fatty Kidney.	(4) Amyloid or Waxy Kidney.	(5) Chron. Interstitial Nephritis *Cirrhotic Kidney*).
Urine.	*Quantity*, ...	Normal or —	—	— or +	Normal or —	Normal or +	Normal or +
	Reaction, ...	Acid.	Acid.	Acid.	Acid.	Acid.	Acid.
	Color, ...	Wine yellow.	Dark smoky.	Brown yellow.	Pale.	Pale.	Clear.
	Sp. Gr., ...	Normal or —	High.	—	1.015–1.030	—, above 1.010	— 1.010
	Urea, ...	Normal.	—	—	—	Normal or —	Normal.
	Chlorides, ...	Normal.	—	—	—	—	Normal.
	Albumen (*per cent.*), . . .	$\frac{1}{10}$ to $\frac{1}{8}$	1 to 6	$\frac{1}{2}$ to 2	1 to 6	$\frac{1}{10}$ to $\frac{1}{2}$ of globulin.	$\frac{1}{10}$ to $\frac{1}{2}$
	Casts, ...	Hyaline and Epithel.	Blood Epithel. Hyaline.	Granular Hyaline. No blood.	Fatty.	Few and hyaline.	Very few.
	Sediment (*macroscopical*),	Mucus. Blood.	Brown cells. Urates.	Kidney epithel'm. Blood. Lymph.	Free oil.	Seldom any.	Seldom any.
Dropsy, ...		Seldom.	Great, especially of face.	Never absent.	Great.	Trifling.	In last stages.
Uræmia, ...		. . .	Often great.	Not marked.	Rare.	Rare.	Great.
Other Symptoms, ...		Stiff joints Sacral pain. Lassitude.	Fever.	Temperature low. No fever. Inflam. of serous membr's. Cardiac hyper.	Face pale, puffy. Cardiac hyper.	Emaciation, sallow face, enlarged liver and spleen, thirst, diarrhœa.	Retinitis. Tense, quick pulse. Hyper of heart.
Prognosis, ...		Favorable.	Recovery or No. 2.	Recovery (?) or No. 3	Always fatal.	Depends on constitutional disease present.	Unfavorable, but course perhaps long.

Note.—The signs + and — respectively denote a specific gravity greater than 1.024, or less than 1.018, in the line entitled *Sp. Gr.*

Cancer.

Cancerous (Malignant) Tumors.	*Non-malignant Tumors.*
Are of constitutional origin.	Origin, some local error of growth.
Have no cyst, but invade and convert the surrounding tissues.	Limited by a cyst; may compress, but do not invade adjacent tissues.
Cancer material is short-lived from rapid deterioration, but is rapidly reproduced.	Have uncertain period of increase, after which may remain stationary.
Severe increasing pain.	Usually no pain.
Extend to remote parts, reappearing chiefly in lymphatic glands.	Are local, have no disposition to spread.
Cancerous cachexia of general health.	Impair functions of parts pressed on.
Recur after extirpation, fatal in end.	Do not recur.

Scirrhus.	*Encephaloma.*
Is hard.	Is soft and brain-like.
Appears mostly on female breast.	Most frequently on the limbs.
Hard kernel, movable under skin.	At first deeply seated, hard to recognize.
Becomes fixed to adjoining structures, which it puckers.	Spreads through loose textures, which it pushes aside and distends.
Single and grows slowly.	Has numerous tumors, grows rapidly.
Course slow—2–4 years.	Generally fatal in 1–2 years.
Never in the young.	Often in the young, even at birth.

Carditis.

Endocarditis.	*Pericarditis.*
Blowing sound. Excited heart action.	Friction sound. Excited heart action.
Slight if any increase of percussion dulness.	Marked increase in effusion stage.
Impulse strong.	Wavy and feeble.
Sounds normal, or more distinct, except at site where murmur is heard.	Feeble and muffled; no blowing sounds.

Cerebral.

Concussion.	*Compression.*
Patient can be roused; pupils act.	Complete insensibility; motionless pupils.
Breathing seldom stertorous.	Breathing usually stertorous.
Urinary action normal.	May be either retention or incontinence.
Symptoms appear closely after accident.	Frequently do not.

Chancre and Chancroid.

Chancre.	*Chancroid.*
Commences about 3d week after coitus.	In 24 hours to 3 days.
First as a papule, abrasion, or crack.	First as a red spot, then a pustule, then a suppurating sore.
Generally indurated (rarely not.	Not on an indurated base.
Develops slowly.	Develops rapidly.
Discharge slight, unless irritated.	Suppurates profusely.
Is soon limited and seldom phagedenic.	Tends to invade surrounding tissues, or become phagedenic.
Edges sloping, not undermined.	Edges undermined.
Scanty serous secretion.	Discharge is pus and copious.
Sore remains solitary, and cannot be multiplied.	May be transplanted at will, and is seldom single.
Followed by numerous buboes, rarely suppurating, never furnish inocuable pus.	A single bubo may appear and suppurate.

Cholera.

Asiatic.	*Simple.*
Preceded by painless diarrhœa.	Seizure sudden.
Not directly from error in diet.	Generally is from error in diet.
First pain shooting down thighs.	First pain, abdominal colic.
Prostration rapid and overwhelming, and out of ratio to evacuations.	Prostration gradual, less marked than the vomiting and purging.
Rapid reduction of surface temperature; high temperature in cavities.	Gradual reduction of surface temperature; internal temperature normal.
Evacuations like rice-water from first.	Discharges bilious, causing burning and smarting pain; only colorless at very last.
Cramps commence in extremities.	Cramps commence in abdomen.
Veins congested; tongue, lips, and extremities livid purple.	Not so.
Urine albuminous.	Not so.

Croup and Diphtheria.

Croup.	*Diphtheria.*
Premonitory hoarse, metallic cough, without illness.	Premonitory illness, shivers, fevers, sore throat, without cough.
A child's disease.	Attacks adults as well.
Tenacious mucus, covers the swollen membrane.	Distinguished by a false membrane.
A local disease.	A blood poison; great general depression.

Epilepsy and Hysteria.

Epilepsy.	*Hysteria.*
Sudden, complete loss of consciousness.	Gradual and partial or apparent.
Livid face, frothy saliva escapes, eyelids half open, eyeballs rolling, teeth grinding, tongue biting; more or less insensibility of pupils to light.	Face flushed, or complexion unaltered, no froth on lips, eyelids closed, eyeballs fixed, no grinding of teeth, or biting of tongue; pupils react readily.
Countenance is distorted.	Is not.
Patient shows no feeling.	Sighs, or laughs, or sobs.
Aura epileptica.	Globus hystericus.
Short paroxysm, followed by heavy comatose sleep and dull intellect.	Longer paroxysm, not sleepy, but usually wakeful and depressed in spirits.
Frequently occurs at night.	Rarely occurs at night.
Not necessarily of uterine connection, though a paroxysm often occurs at the menstrual period.	Often connected with uterine or menstrual disorders.

Gout and Rheumatism.

Gout.	*Rheumatism.*
Chiefly affects small joints, especially the metatarsal joint of the great toe.	Large joints chiefly implicated.
From 35–50 years; rarely before puberty.	Generally in young adults.
Most frequent in men, and result of idle, intemperate and luxurious life.	Affects both sexes equally, and equally the poor and the rich.
Is strongly hereditary.	But slightly so.
Chalk stones (urate of soda) in ext. ear, on tops of fingers, or elsewhere.	Not so.
Uric acid in the blood, absent from urine.	Lactic acid in the blood.
A fit often affords temporary relief.	Quite the contrary.
Is confined to temperate zone.	Is ubiquitous—prevails in all climates.

Hematemesis and Hemoptysis.

Hematemesis.	*Hemoptysis.*
If from the stomach, the blood is of a dark color, and is vomited.	If from the lungs, it is bright red, and generally coughed up.
Often mixed with food, not froth.	Generally frothy, mixed with sputa.
Preceded by nausea and stomach distress, and blood is passed with the stools.	Preceded by pain in the chest and dyspnœa. No blood in the stools.

Pleurisy and Pneumonia.

Pleurisy.	*Pneumonia.*
Sharp pain, friction sound, dry cough, impaired chest motion.	Dull pain, crepitant râle, cough followed by expectoration.
In stage of effusion, obliteration of intercostal spaces, enlargement of the side, viscera displaced.	In stage of hepatization none of these signs are present.
Dulness, with enfeebled or absent respiration, voice, and fremitus.	Dulness, with marked bronchial respiration, distinct thoracic voice, increased vocal fremitus.
Sputa frothy, rarely any râles.	Sputa rusty color, râles common.
Febrile symptoms slight usually.	Febrile symptoms severe.
Temperature irregular, rarely high.	Sudden elevations and falls, high temperature not uncommon.

Phthisis.

Tubercular.	*Non-Tubercular.*
First symptom, a dry, short cough.	First stage follows catarrh, bronchitis, or some other acute disease.
No exciting cause apparent.	Is referable to some exciting cause, as cold, inflammation, or inhaling of heavy dust.
Hereditary cases are of this class.	Not hereditary.
Frequently preceded by enlarged or suppurating glands, or other evidence of scrofula.	No evidence of scrofula.
Voice changes from tubercular deposit.	No change of voice.

Exanthemata.

Scarlet Fever.	*Measles.*	*Small-pox.*
Incubation 1 day to weeks.	Incubation, 7–14 days.	Incubation, 6–20 days. Average 10.
Fever, great heat of skin, and frequent pulse, unabated during eruption.	Same fever rather increased by eruption.	Fever often violent, bounding pulse, pain in loins, greatly relieved by eruption.
Brilliant stare.	Liquid watery eye.	
Eruption on second day, not rough, first on neck and chest, spreads rapidly, white streak on pressure with nail.	On fourth day, on face, rough, spreads gradually, streak lasts short time.	Usually on third day, at first on lips and forehead, spreading rapidly.

Scarlet Fever.	*Measles.*	*Small-pox.*
Uniform, or large patches, interspersed raised spots and some vesicles, rash scarlet, on its seventh day very complete desquamation in large patches.	Crescentic patches, last about 5 days, and then partial desquamation, scales very fine.	Papular, then vesicular, finally pustular; pustules maturate on 8th day of eruption.
Sore throat, rarely coryza or bronchitis.	Coryza and bronchitis very constant, rarely sore throat.	Sore throat often and dry cough.
"Raspberry" tongue, red.	Tongue coated, may be red at edges.	Coated and swollen, may be red at edges.
Cerebral symptoms frequent and grave.	Not so.	Cerebral symptoms are frequent.
Temperature may be 105°–112° to 10th day, subsides gradually, falls on 5th, 10th, and 15th days.	103°–106° before eruption, remains high for 1–2 days after, then falls suddenly.	Before eruption often 106°, then rapidly sinks to 100° in 36 hours; rises during secondary fever.
No secondary fever.	None.	Always secondary fever.
Pneumonia rare, pleurisy more frequent.	Pneumonia a frequent complication.	Pneumonia not a very frequent complication.
Sequelæ: Bright's disease, dropsy, deafness, conjunctivitis, phthisis, chronic diarrhœa; glandular enlargements.	Sequelæ: chronic bronchitis, phthisis, conjunctivitis.	Sequelæ: chronic diarrhœa, glandular enlargements, various eye diseases.

Typhus and Typhoid.

Typhus Fever.	*Typhoid (Enteric) Fever.*
Attacks quickly, incubation 9 days.	Commences slowly, incubation about 13 days.
Occurs at any age.	Most common in youth and childhood, rarely after 40.
Rare among the higher classes, except those exposed.	As common among rich as the poor.
Mulberry eruption on 4th or 5th day, on extremities, lasts till close.	Rose eruption, few, on abdomen, and in successive crops, which fade and disappear.
Brain chiefly affected; bowels are often but little so; abdomen natural, evacuations dark, but never bloody (these are occasionally reversed).	Bowels chiefly affected, evacuations ochre-color and watery, sometimes hemorrhage, or even ulceration, abdomen tumid.
Contracted pupils, dusky face.	Dilated pupils, cheeks flushed.
Pulse and temperature rise to 120 and 105° till 3d day, high for 6 days, then fall.	Pulse and temperature rise and fall independently, and without uniformity, but both are usually high to 15th day.
Lasts 2–3 weeks.	Lasts 4–6 or more weeks.
Relapses rare.	Relapses frequent.
Death from coma, or congestion of the lungs, in 1st or 2d week.	Death from asthenia, pneumonia, hemorrhage, or perforation of intestine, in or after 3d week.
Arises from destitution, over-crowding, bad ventilation, is contagious, and generally epidemic.	Bad drainage, poisoned drinking water, putrid animal matter, want of ozone, certain electrical conditions; is not contagious, often sporadic.
Post-mortem: not constant, most frequent are dark blood and enlarged spleen, soft heart.	Post-mortem: morbid Peyer's patches, enlarged mesenteric glands, ulcerated mucous coat of intestines; enlarged and soft spleen, ulcerated pharynx.

Yellow and Bilious Fevers.

Yellow Fever.	*Bilious Remittent.*
Short duration; ends in 3-7 days.	Lasts 9 days or more.
Incubation 5-9 days.	Incubation may extend to months.
A disease of one paroxysm, terminating in recovery or collapse.	A disease of several paroxysms, with intervening remissions.
Very severe nausea and vomiting, early epigastric tenderness.	These symptoms are not so severe nor so early.
Black vomit.	Bilious vomiting.
Hemorrhages from various parts.	No hemorrhagic tendency.
Tongue clean, or slightly coated.	Tongue heavily coated.
Pulse variable, slow at end.	Pulse quick to convalescence.
Injected and humid eye.	Eye natural.
Supra-orbital pain, pain in back and in calves of legs.	Headache, sense of fullness in head, often no loin or leg pains.
Rarely delirious, mind clear generally.	Delirium frequent, mind dull.
Urine albuminous, usually suppressed.	Not so.
Rapid convalescence, no sequelæ.	Slow convalescence, tedious sequelæ.
Little muscular prostration.	Greater muscular prostration.
High mortality, epidemic.	Slight mortality, endemic.
Treatment unsatisfactory.	Very amenable to treatment.
Autopsy: inflamed or congested stomach, enlarged yellow liver, filled with oil globules, muscular fibres of heart are often disintegrated.	Autopsy: stomach congested, rarely inflamed, liver olive or bronze hue, not fatty.

Vomiting.

Cerebral.	*Gastric or Hepatic.*
Little or no nausea, vomiting continues after stomach is emptied.	Nausea relieved by discharge, returns when food is taken.
No tenderness on pressure over the liver or stomach.	Liver and stomach are tender, pressure produces inclination to vomit.
Pulse infrequent and hard.	Pulse frequent and weak.
Tongue clean, breath sweet, conjunctivæ normal or injected, and headache primary.	Tongue furred, breath offensive, conjunctivæ often yellowish, and headache secondary as to time.
Generally obstinate constipation.	Griping abdominal pain, diarrhœa and clay-colored stools.
No salivation.	Increased salivation.

NOTES ON TEMPERATURE IN DISEASE.

Temperature, average normal, of adults, 98.6° F.; of children, 99°; of the aged, 98.8°. Diurnal variation 1° to 1.5° F., highest from 9 A. M. to 2 P. M. Above 108° F. is a fatal sign, which issue may be averted by cold baths, reduced by ice from 96° to about 60° F. (A.). The clinical thermometer placed in the mouth, axilla or rectum, and retained *in situ* for five minutes, should go hand in hand with Aconite in the treatment of inflammations (R.). [For antipyretics see the articles FEVER, INFLAMMATION, in Part III, also the list of these agents on page 42.]

Clinical Thermometry is one of the principal means of positive diagnosis. The thermometer should be self-registering, certified, and accurately marked according to the Fahrenheit scale. The most reliable temperature is that *in recto*, or in the vagina; less so in the axilla and folds of skin, and still less reliable in the mouth. A correct reading of the thermometer cannot be obtained in less time than five to seven minutes. (DaCosta.)

The Average Normal Temperature of the body is 98.6°; which, like the pulse, will vary somewhat in individual cases; as a general practical result, it is agreed that in temperate regions the normal temperature at completely sheltered parts of the surface of the human body amounts to 98.4° Fahr., or a few tenths more or less; and a rising above 99.5°, or a depression below 97.3° F., are sure indications of some kind of disease, if the increase or depression is persistent. The temperature is increased at the prime of life, is raised and depressed temporarily by the influence of diet, stimulants, exercise, etc. The minimum diurnal temp. is observed at 2 A. M., the maximum at 4 to 6 P. M. Any rise above 99.5°, or fall below 97.3°, if persistent, indicates disease; on the other hand, a normal temperature does not always indicate good health. The greatest recorded range of temperature in disease is 50.4°; the minimum is 71.6° in a case of sclerema neonatorum (Quain's Dict.), the maximum 122°. In severe and fatal cases it rarely exceeds 107°, and rarely falls below 92°, even in fatal collapse. It may rise 3°-4° after death, as observed in a case of typhoid fever in which death occurred with a temperature of 107°, which increased shortly afterwards to 110.5°. A temperature of 107° indicates malignancy, and where met with for two consecutive days in typhus, scarlatina, measles, pneumonia, pyæmia, meningitis or rheumatism, death may be expected shortly. In relapsing, remittent and intermittent fevers, and in the initial chill of an abortion, the temperature may reach 107° without indicating great danger. During the last hours of life, in many diseases, the temperature rises to 109°-111°; for example, in tetanus, sun-stroke, typhus, etc. With a temperature of 96°, collapse is imminent.

Abnormally High Temperatures reported in the British Med. Jour, by Dr. Donkin. In these eight cases all but one were in females, and none proved fatal. Pain was a prominent symptom in all. No. 1, 111.6°; convalescing from enteric fever. No. 2, 108°; no organic lesions: ovarian pain. No. 3, 115.8°; great abdominal pain and excitement. No. 4, 111°; convalescing from enteric fever. No. 5, 113°; enteric fever and double pneumonia. No. 6, 112°; synovitis. This was the only male. No. 7, 112°; painful stump, with necrosis. No. 8, 117°; pyonephrosis.

A High Average Temperature (above 104°), is found in severe pneumonia, scarlatina, remittent, typhus, typhoid and relapsing fevers, pyæmia, etc. *A Moderately High Temperature* (102° and above), is seen in peritonitis, acute rheumatism, pericarditis, pleurisy, dysentery, cerebro-spinal-meningitis, catarrhs, etc. A temperature of 100° and above, is found in chronic affections, incipient inflammations, and mild fevers. When, in effervescence, the heat increases rapidly, it will, in defervescence, decline proportionately fast, and *vice versa*. Beware of a grave affection when the temperature is of a continuous type. A distinct interval between morning and evening temperature is a favorable sign. A slow and gradual increase indicates typhoid fever; in rheumatism and anomalous fevers the increase is more rapid, and still more so in acute inflammatory disease, pneumonia, angina, pleurisy, typhus, scarlatina, rubeola, etc. It is usually very rapid in intermittent fever, febricula, and ephemeral fevers. A rapid effervescence and slow defervescence indicates some complication of disease; the reverse order indicates great danger. When the temperature begins to fall from the evening to the morning, it is an indication of improvement; while a rise of temperature from the evening to the morning is a sure indication that the patient is worse. Stability of temperature from morning to evening is a good sign, but from evening to the morning, unfavorable.

A Decrease of Temperature below the normal heat is rare. It occurs sometimes transitorily, announcing thereby a favorable crisis, by preceding the return to a normal temperature. It is also met with occasionally during the morning remission of remittent fever; also during the apyrexia of intermittents; in acute collapse, preceded or not by fever; in chronic wasting diseases; and sometimes, also, on the approach of death, especially in typhus fever.

In Phthisis, the temperature is higher in the evening than in the morning; later, higher at early bedtime than at noon, and high again at dusk. This is a valuable and delicate test of the progress of tuberculization.

In Typhoid Fever, the accession is by a rise of one degree each day, with the diurnal variation. If the evening temperature does not exceed 103.5°, the disease will probably be mild; but a temperature of 105° in the evening indicates a severe type and much danger. A sudden reduction to 95° in the third week denotes intestinal hemorrhage; a lingering temperature of 101°-102° in the fourth and fifth weeks indicates non-cicatrization of the intestinal ulceration.

In Scarlatina, the rise of temperature is rapid, 104.7° may be reached in a few hours. It seldom rises above 105° and never above 106°; is continuous until the eruption begins to fade, when remissions take place, unless complications arise.

In Measles, 103° is the usual temperature, with daily variations, increasing with the eruption and catarrhal symptoms. A high temperature lasting beyond the tenth day denotes complications.

In Diphtheria, the temperature by the end of the third day will, in uncomplicated cases, not exceed 103°–104°. It falls temporarily with the exudation. Defervescence in the severe, favorable cases, is from the twelfth to the fourteenth day; in the milder cases not before the sixth. In some fatal cases it occurs early, from the third to the fourth day. In asthenic cases, the temperature of the surface falls, while that of the interior remains high —100° in the axilla, and 103° in the rectum. During convalescence, the temperature is low, and readily depressed, but may be raised by intercurrent maladies. Any increase after the first five days, or a continuous high temperature after the first ten days, is unfavorable. A sudden rise may indicate complications.

Co-Relation of Pulse and Temperature.—As a general rule the co-relation of pulse and temperature may be stated as follows, namely: an increase of temperature of one degree above 98° F. corresponds with an increase of ten beats of the pulse per minute, as in the following table:—

Temperature of	98°	corresponds with	a pulse of	60.
"	99°	"	"	70.
"	100°	"	"	80.
"	101°	"	"	90.
"	102°	"	"	100.
"	103°	"	"	110.
"	104°	"	"	120.
"	105°	"	"	130.
"	106°	"	"	140.

OBSTETRICAL MEMORANDA.

Pregnancy.—*Duration* about 275 days; usually reckoned as about 280 days from the first day of the last menstruation. The extremes of 405 cases at the Hôtel Dieu were 6 months, and 11 months 8 days. Many rules for the calculation of the date when labor may be expected are given; as good a one as any is to count backward three calendar months from the last day of the last menstruation, then add 7 days to obtain the date of expected confinement (Nægelé). The French law makes a child illegitimate if born within 200 days after marriage, or over 300 days after the husband's death.

Evidences of pregnancy may include: suppression of the menses; nausea and vomiting, morning sickness; salivation; changes in the appearance of the breasts and nipples; changes in the position of the uterus, which descends during the first two months, rising from the third month, until, at the fifth, its fundus is level with the umbilicus, at the eighth nearly to the sternum, settling down at the ninth month; œdema of limbs; neck of uterus becomes shortened, the os patulous. The most positive signs are: *quickening*, if the statements of the women are credible; *ballottement;* and above all, the *pulsations of the fœtal heart.*

Labor. *Preliminary Signs.*—Abdominal tumor sinks lower, occasional uterine pains and contractions, freer respiration, discharge of glairy fluid from vagina, frequent desire to urinate, hemorrhoids, œdema of legs.

Essential Signs.—Paroxysmal pains, at regular intervals; os uteri generally low, neck effaced, os affected by each pain (easily ascertained by keeping finger on it). Dilatation of os uteri, requiring longer to acquire the size of a half-dollar, than from thence to completion. Shiverings and vomiting, tremblings and fainting, especially at complete dilatation.

Head Positions (4).—Right (1st), or left (2d) occipito-anterior, forehead backwards; right (3d), or left (4th) occipito-posterior, forehead forwards. Order of their comparative frequency: 1st, 3d, 2d, 4th. The 3d rotates into the 2d, the 4th into the 1st.

Facial Positions (4).—Right (1st), or left (2d) mento-posterior, forehead forwards; right (3d), or left (4th) mento-anterior, forehead backwards. The 2d rotates into the 3d, and the 1st into the 4th.

Pelvic, or Breech Positions (4).—Left dorso-anterior (1st), left trochanter forwards; right dorso-anterior (2), right trochanter forwards; left dorso-posterior (3), right trochanter forwards; right dorso-posterior (4th), left trochanter forwards. Order of their comparative frequency, 1st, 2d, 4th, 3d.

Shoulder Positions.—Varieties (2); dorso-anterior, and dorso-posterior, the former occurring twice as often as the latter. In each variety the head may lie in either iliac fossa; the presenting shoulder being, in dorso anterior position, the left if the head is in the right fossa; in dorso-posterior position, the left if the head is in the left fossa, and *vice versa.*

AVERAGE PELVIC DIAMETERS.

	As usually given.			Prof. E. Wallace gives—		
	Antero-Posterior.	Oblique.	Transverse.	Antero-Posterior.	Oblique.	Transverse.
Brim, ...	4¼ in.	4.8 in.	5.2 in.	4.0 in.	—5.0 in.	+5.0 in.
Cavity, ...	4.7 "	5.2 "	4¾ "	4¾ "	4¾ "	4¾ "
Outlet, ...	5.0 "	. .	4.2 "	4.0 "	4.0 "	4.0 "

Circumferential measurement of the brim—about 17 inches.

DEVELOPMENT OF THE FŒTUS.

[Entries in the column headed "Month" refer to the end of each month.]

Month.	Name.	Length in inches.	Weight.	Appearance.
1st	Ovum	one-twelfth.	. .	Appears as a gray gelatinous mass.
2d	Embryo	1.2	60 grains.	Extremities apparent: points of ossification appear.
3d	"	2½ to 3½	310 "	Neck, eyes, fingers, nails begin to form; sexes distinct.
4th	Fœtus	6½ to 7½	9 oz.	Hair, fat; muscles capable of contraction.
5th	"	8 to 10	10 to 12 oz.	Eyebrows, skin, scrotum; nails nearly solid.
6th	"	11 to 12	1 lb.	Pupillary membrane formed, lips closed.
7th	"	12½ to 14	2⅔ lbs.	Eyelids open, testes begin to descend, fœtus is viable.
8th	"	15 to 17	4 to 5 lbs.	Skin red, smooth, covered with down.
9th	"	19 to 24	7 to 7¼ lbs.	Testes near scrotum, left often therein.

DIAMETERS OF THE FŒTAL SKULL AT TERM.

Diameter.	Where measured.	Inches.
Fronto-mental, ...	Apex of forehead to chin, ...	3¼
Occipito-mental, ...	Occipital protuberance to point of chin, . .	5¼–5½
Occipito-frontal, ...	Occiput to centre of forehead, ...	4½–5
Sub-occipito-bregmatic, . .	Midway between occiput and foramen magnum to centre of ant. fontanelle, ...	3¾
Cervico-bregmatic, ...	Ant. margin of foram. mag. to centre of anterior fontanelle, ...	3¾
Bi-parietal, ...	Between the parietal protuberances, ...	3¾–4
Bi-temporal, ...	Between the ears, ...	3½

[Compare the articles in Part III entitled—ABORTION, AFTER-PAINS, FALSE-PAINS, HEMORRHAGE POST-PARTUM, LABOR, LACTATION, PREGNANCY, PUERPERAL DISORDERS, VOMITING OF PREGNANCY, etc.]

ASPHYXIA AND APNŒA.

From Drowning.—Remove the person from the water as rapidly and gently as possible, turn the face downwards for a moment, and depress the tongue, in order that water, mucus, etc., may be removed from immediately over the entrance of the windpipe. Give the patient plenty of fresh air, fully exposing neck and chest to the breeze, unless inclement. Turn gently on the face, one forearm being under the forehead, and raise the body up that the water may have free discharge from the mouth. Place patient upon the side and apply stimulants (ammonia, etc.) *near* the nostrils; or the cold douche, in order to excite respiration.

The above measures being ineffectual, convey the body to the nearest convenient spot, strip it carefully and dry it, and place it on a warm bed, with head and shoulders slightly raised, and at once employ one of the following methods, known as Silvester's and Marshall Hall's.

Silvester's Method.—Pull the tongue forward, to prevent obstruction to entrance of air into the windpipe; produce expansion of the chest by drawing the arms from the sides of the body and upwards until they almost meet over the head. Then bring the arms down to the sides again, causing the elbows almost to meet over the pit of the stomach, and thus producing contraction of the chest. This imitation of the act of respiration should be continued at the rate of fifteen or sixteen times a minute, as in health.

Marshall Hall's Method.—The person should be placed flat on the face, gentle intermittent pressure being made with the hands on the back, the body turned on the side, or a little beyond, then on the face, and the same pressure, etc., continued as at first. The whole body must be worked simultaneously. The same number and frequency of these artificial processes of respiration should be employed as in the other method.

The Michigan Method.—Lay the body face down, the head upon the arm, and stand astride it; grasp it then about the shoulders and armpits, and raise the chest as high as you can without lifting the head quite off the arm, and hold it about three seconds; then replace the body upon the ground, and press the lower ribs downwards and upwards, with slowly-increasing force, for ten seconds; then suddenly let go, to perform the lifting process again.

Whichever process be employed, the effort to restore the temperature of the body must be maintained, the body being well rubbed in an upward direction with the hands, with warm flannels, etc.; bottles of hot water, hot bricks, etc., being applied to the stomach, the axillæ, the soles of the feet, etc., stimulants and beef-tea being judiciously administered when restoration is about taking place. The attempts at resuscitation must be persevered in for several hours, if necessary.

Laryngotomy or tracheotomy, with or without catheterization, or forced insufflations of air or oxygen, have proved successful, as also electro-puncture (Garratt).

In artificial inflation, always press the larynx and trachea against the vertebral column, so as to close the œsophagus and thus prevent the air entering the stomach.

After Long Submersion is Recovery Possible?—According to Harley (p. 881), dogs kept under water 1½ minutes always died, if water had entered the lungs. If it had not, the trachea being plugged, they survived a submersion of 4 minutes. When persons rise after sinking they usually get some air, and less speedily come into a state from which recovery is impossible. The greatest period between the last inspiration and the stoppage of the heart is 4 minutes. Some think that no recovery has been made after complete cessation of the heart's action. We infer that after complete submersion for 5 minutes recovery is improbable, unless the person had been previously choked, or in a fainting state, so that no water entered the lungs. But in Anderson's case, the patient had been under water at least 15 minutes, and in Garratt's the time was variously estimated at from 15 to 60 minutes.

When is a Case Hopeless?—Harley says (p. 892): "If the eyes are open, the pupils dilated, the conjunctiva insensible, the countenance placid, the skin cold, frothy mucus round the nostrils and mouth, no attempt at respiration, and the heart's action inaudible (when the ear is applied to the chest), the case is hopeless."

Signs of Death.—The following have been suggested as methods of deciding whether death has occurred:—

(*a.*) Tie a string firmly about the finger. If the end of the finger becomes swollen and red, life is not extinct.

(*b.*) Insert a bright steel needle into the flesh. If it tarnishes by oxidation in the course of half an hour, life may be considered not extinct.

(*c*.) Inject a few drops of Liquor Ammoniæ under the skin. During life a deep red or purple spot is formed.

(*d*.) Moisten the eye with Atropine. During life the pupil will dilate.

(*e*.) Look at a bright light or at the sun, through the fingers held closely side by side. During life the color is pink; after death a dead white.

(*f*.) After death a dark spot is said to form gradually on the outer side of the white of the eye, from drying of the sclerotic, so that the dark choroid shows through.

(*g*.) Putrefaction is an absolute sign of death. Better delay for it than run any risk of burying alive.

From Foreign Bodies in Air Passages.—If round and smooth, invert the patient and strike on the back: laryngotomy: tracheotomy.

Of the New-Born.—Clean the mucus out of nostrils and throat; catheterize the trachea, and suck up the mucus. "Marshall Hall's method:" by placing child on abdomen, then bringing into lateral posture, repeating slowly and deliberately. "Schultze's method:" by placing the thumbs upon the anterior surface of thorax, the indices in the axillæ, and the other fingers along the back, the face of the child being from you; rotate the child, by swinging upwards, so that the inferior extremities turn over towards you. In a moment re-rotate to the original position. Do not support head or legs in the forward rotation; their bending upon or towards the abdomen gives a forced expiration.

CLINICAL EXAMINATION OF THE URINE.

NOTE.—Use morning urine, or a sample of all passed during the 24 hours.

Color	Pale (and copious), 1.030 + . .	indicates	Sugar.
	Pale (and copious), below 1.018	"	Hysteria and convulsions, nervous disease.
	Of urine and froth, very yellow or greenish, ...	"	Bile, Rhubarb.
	Bright yellow to crimson, . . .	"	Santonin.
	Dark, odor of violets, ...	"	Turpentine.
	High (scanty), sp. gr. + . . .	"	Fever, Uric Acid Diathesis.
	High (scanty), sp. gr. — . . .	"	A grave symptom of Bright's Disease.
	Dark, muddy, smoky, ...	"	Blood, strong Coffee.
	Black, ...	"	Putridity, disintegrated Blood, Tar, Creasote.
Smell	Fragrant, ...	"	Cystine, Sugar, etc.
	Fetid, ...	"	Alkalinity.
	Of violets, ...	"	Turpentine.

Quantity (in 24 hours). Normal about 50 fl. oz., from which there may be considerable variation either way, according to the quantity of sweat, the fluidity of food used, etc.

Specific Gravity. If possible, take the mixed urine. Normal is about 1.018, *i.e.*, 18 grains of solids in each fl. oz. If sp. gr. is high, suspect sugar; if low, suspect albumen.

Reaction, in health is always *acid* in 24-hours' urine. It may be *alkaline* from medicine, or disease, or shortly after a meal. If excessively acid, examine for crystals of uric acid. If alkaline, let the test-paper dry, so as to ascertain whether the alkali be fixed or volatile.

Albumen by Heat and Nitric Acid. With Acetic Acid, or dilute Ammonia, make the urine slightly acid. If a precipitate appear on boiling, it may be *Albumen* or *Phosphates*. Add a drop or two of Nitric Acid. If the precipitate dissolve, it is *Phosphates;* if not, it is *Albumen*. If a deposit or turbidity disappears on heating, it consists of *Urates;* if not, add a drop of Nitric Acid. If now dissolved, we have *Phosphates;* if not, *Cystine*. Other Tests are the *Potassio-Mercuric Iodide*, the *Sodium Tungstate*, *Potassium Ferrocyanide*, and *Picric Acid Tests;* but the above described one, if carefully done, will give as good results as any.

Bile Pigment and Acids, if necessary. *Vogel's* color-table. *Marechal's Test*, as follows: Put ʒj of urine in a test-tube, and pour one or two drops of Tinct. Iodi. to trickle down along the side of the tube, held horizontally nearly, so that the two fluids may touch, but not mix. If bile pigment be present, a fine green color will at once be developed below the red Iodine layer. *Noel's Test, Pettenkofer's Test, Nitric Acid Test, Oxide of Silver Test.*

Sugar, if necessary. Urine containing sugar is usually light-colored, froths readily when poured from one vessel to another, and has a high specific gravity. *Fehling's Test*, as follows: Add to the boiling urine a few drops of *freshly-prepared* solution of Potassio-Cupric Tartrate (*Fehling's Solution*). If sugar be present, a yellow, orange, or red precipitate of Cuprous Oxide will form, 10 cubic centimeters of the solution being reduced by 0.05 gram. of diabetic sugar. *To prepare Fehling's Solution*, dissolve 34.639 grams of pure, crystallized Copper Sulphate in about 200 grams of Distilled Water; also 173 grams of chemically pure, crystallized, neutral Tartrate of Sodium in 500 or 600 grams of a solution of Caustic Soda, of specific gravity 1.12, pouring the first solution into the latter, slowly and a little at a time. The clear, mixed fluid is then diluted with distilled water up to a litre. This solution soon spoils, and must be kept in a dark, cool place. Much more convenient are Dr. Piffard's *Cupro-Potassic Paste*, and Dr. Pavy's *Cupric Test Pellets* (see Tyson on Urine, page 57); and still more handy are Wyeth's *Compressed Tablets* for preparing Fehling's Solution of Potassio-Cupric Tartrate, U. S. P. 1880, a box of which costs 50 cents, and may be obtained from any good drug-store. The writer has used these Tablets for some two or three years, with extreme satisfaction.

Pavy's Solution is a modification of Fehling's, is equally good for qualitative and volumetric testing, and is intended for those who prefer the apothecaries' weights and measures to the metric system. It is made in the same manner as Fehling's, 100 minims corresponding to ½ grain of diabetic sugar, and consists of—Copper Sulphate, gr. 320; Potassium Tartrate (neutral), gr. 640; Caustic Potash, gr. 1280; and Distilled Water, f℥ 20.

Other Tests for Sugar are *Bottcher's Bismuth Test*, the *Fermentation Test*, *Moore's*, *Trommer's*, the *Picric Acid* and the *Indigo-Carmine*. They are all useful, but will not be detailed here, as one good method is all that the average practitioner wants.

Chlorides. Add a drop of Nitric Acid, and then Silver Nitrate until a precipitate ceases to form. Thus estimate the amount of Chlorides.

Urea. Place a drop of urine on platinum-foil, and to it add a drop of Nitric Acid, and leave undisturbed in a cool place for a minute or two. If the urea is in excess, crystals of *Uric Nitrate* form immediately.

To ascertain the percentage of urea present, use Parke, Davis & Co.'s Ureometer, employing the Solution of Hypobromite of Sodium, instead of the Solution of Chlorinated Soda, the former giving much the best results. This apparatus is simple, reliable, and quite accurate enough for clinical purposes.

Mucus and Pus resemble each other so closely under the microscope, that it is almost impossible for any one, except an expert, to distinguish between them thereby. Mucus is more cloudy and flocculent to the naked eye than Pus, which latter is generally of a stringy consistence and thickish yellow appearance at the bottom of the vessel. The supernatant liquid being poured off, and an equal bulk of Liquor Potassæ added, the deposit, if containing much pus, becomes gelatinized, and so tough that it cannot be poured out. If Mucus, Acetic Acid added coagulates it, forming delicate molecular fibres.

Other Deposits are best examined with the microscope, and compared with good plates, rather than with printed descriptions. The plates in Hoffman and Ultzman on Analysis of the Urine, will answer the wants of most general practitioners, but the text follows the metric system. The urinary deposits may be classified thus:—

In Alkaline Urine only.	In Alkaline or Acid Urine.	Organized Deposits.	
Calcium Phosphates	Uric Acid	Mucus	Torulæ
Ammonium Urates	Urates	Pus	Sarcinæ
Ammoniaco-magnesian, or the Triple Phosphates.	Phosphates	Blood	Vibriones
	Oxalates	Tube-casts	Bacteria
	Cystine	Spermatozoids, etc.	

Necessary Apparatus. A dozen test-tubes. Alcohol lamp. A small porcelain dish. 2 watch-glasses. A sheet of platinum foil, ¾ inch square. 3 pipettes of different sizes, to be used only for urine. A 2-oz. graduate. Urinometer. Blue and red litmus-paper. The reagents mentioned above. A little Grape-sugar, for use in testing the Fehling's solution. Ureometer (Parke, Davis & Co's).

The foregoing directions comprise all that the average practitioner will usually perform in the matter of urinary analysis. For fuller directions, the reader is referred to one of the numerous manuals on the subject, among which may be mentioned Da Costa on Medical Diagnosis, Chapter VII.—Tyson on the Practical Examination of Urine,—and Sir Henry Thompson's Clinical Lectures on Diseases of the Urinary Organs, Lecture XXIV.

A "*Physician's Pocket Reagent Case*," intended for urinalysis at the bedside, is put up by Parke, Davis & Co., and sold at the low price of $1.50. It contains a set of Dr. Oliver's Test Papers, a color scale, specific gravity beads, two test-tubes, a pipette, and full directions for the use of the reagents, which are to be absorbed by the test papers.

ETHICS.

The Hippocratic Oath.—I swear by Apollo, the physician, and Æsculapius, and Health, and All-heal, and all the Gods and Goddesses, that according to my ability and judgment, I will keep this oath and this stipulation:—to reckon him who taught me this Art equally dear to me as my parents, to share my substance with him and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this Art, should they wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath, according to the law of medicine, but to none others. I will follow that system of regimen which according to my ability and judgment I consider for the benefit of my patients, and abstain from what is deleterious and mischievous. I will give no deadly medicine to any one, if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and holiness I will pass my life, and practice my art. I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and further from the seduction of females or males, of freemen and slaves. Whatever, in connection with my professional practice, or not in connection with it, I see or hear in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath unviolated, may it be granted me to enjoy life and the practice of the Art, respected by all men, in all times; But, should I trespass and violate this oath, may the reverse be my lot! [Adam's Genuine Works of Hippocrates, Sydenham Society, London, 1849.]

EXTRACTS FROM THE CODE.

Consultations should be promoted in difficult cases. During them no jealousy or rivalship should be indulged. Candor, probity, and all due respect should be exercised toward the physician in charge. The attending physician should first question the patient, the consulting one afterwards putting such other questions as may seem fit to further elucidate the case. The discussion should take place in a private place, and no *opinions* delivered which are not the result of concurrence. In discussion, the attendant delivers his opinion first, the others in the order in which they have been called.

A Regular Medical Education furnishes the only presumptive evidence of professional abilities and acquirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. No one can be considered a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession.

Punctuality should especially mark the keeping of these engagements; if one of the parties be delayed, the other should wait a reasonable time, and then, if the attendant, prescribe; if the consulting, he should retire, unless the case is urgent or he be called from a distance, when he should prescribe for the emergency or leave a written opinion under seal. All theoretical discussions should be avoided. Should diversity of opinion prevail, the majority should rule; should the numbers be equal on each side, the decision should rest with the attending physician. The consulting physician should always justify, as far as may be consistent with truth, the course pursued by the attending one, and no hint impairing confidence in him, or his reputation, should be thrown out. A double fee should be expected in all consultations.

Interference.—A physician should not visit or prescribe for a patient who has been under the care of another for the same malady, unless in, 1st, a case of emergency; 2d, of consultation; 3d, of relinquishment, by the physician, of the case; 4th, or a regular notification to him that his services are not longer desired. When the case is assumed by another, he should indulge in no insinuations against the former attendant. If called because the family physician is not at hand, or is sick, he should resign the case to him on his arrival. In case several physicians are simultaneously called, as in accidents, the first arriving should take full charge of the case, unless the family attendant be present, when he should assume the charge; if not present, he should be sent for, and the further treatment resigned to his hands.

Miscellaneous.—A case should never be abandoned because it is supposed to be a hopeless one.

Contumelious and sarcastic remarks relative to the Faculty, as a body, should always be avoided. "It's a foul bird that fouls its own nest."

It is held unprofessional to resort to "public" advertising, to hold a patent upon an instrument, or to dispense or prescribe a secret nostrum.

Gratuitous services should be given to an afflicted brother practitioner. If compelled to temporarily suspend his practice, on account of sickness, the physician who has been invited to take charge of his cases should turn the accruing fees over to the sick one, save in surgical or obstetrical cases.

TABLE OF SPECIFIC GRAVITIES AND SPECIFIC VOLUMES.

(Temperature at 59° F., except when otherwise stated.)

Liquid.	Specific Gravity.	Specific Volume.
Acid, Acetic, ...	1.048	.954
Ac. Acet. dil., ...	1.008	.992
Ac. Hydrobromic (34 per cent.), ...	1.303	.767
Ac. Hydrobrom. Dil., .	1.077	.928
Ac. Hydrochloric, . .	1.160	.862
Ac. Hydrochlor. Dil., .	1.049	.953
Ac. Lactic, ...	1.212	.833
Ac. Nitric, ...	1.420	.704
Ac. Nitric. Dil., ...	1.059	.944
Ac. Oleic, ...	0.800	1.250
Ac. Phosphoric, ...	1.347	.742
Ac. Phosphor. Dil., . .	1.057	.945
Ac. Sulphuric, ...	1.840	.543
Ac. Sulphuric. Dil., . .	1.094	.914
Æther, ...	.750	1.333
Æther Fortior, ...	.725	1.379
Alcohol, at 60° F., . . .	.820	1.219
Alcohol, at 77° F., . . .	.812	1.231
Alcohol, Dil., at 60° F.,	.928	1.077
Alcohol, Dil., at 77° F.,	.920	1.087
Aqua Destill., at 39° F.,	1.000	1.000
Aqua Ammoniæ, ...	.959	1.043
Aq. Ammon., Fort., . .	.900	1.111
Benzin, ...	.670	1.493
Carbon Bisulphide, . .	1.272	.786
Chloroform. Purif., . .	1.488	.672
Chloroform. Venale, . .	1.470	.680
Glycerin, ...	1.250	.800
Liq. Ferri Acet., ...	1.160	.862
Liq. Ferri Chlor., . . .	1.405	.711
Liq. Ferri Tersulph., .	1.329	.757
Liq. Potassæ, ...	1.036	.965
Liq. Sodæ, ...	1.059	.944
Mel (Honey), ...	1.333	.750
Ol. Adipis, ...	.900	1.111
Ol. Amyg. Expres., . .	.917	1.091
Ol. Aurant. Cort., . . .	.860	1.163
Ol. Bergamii, ...	.875	1.143
Ol. Caryophilli, ...	1.050	.952
Ol. Copaibæ, ...	.890	1.123
Ol. Cubebæ, ...	.920	1.087
Ol. Eucalypti, ...	.900	1.111
Ol. Gaultheriæ, ...	1.173	.852
Ol. Gossyp Sem., . .	.925	1.081
Ol. Lavandulæ, ...	.890	1.123
Ol. Limonis, ...	.850	1.176
Ol. Lini, ...	.936	1.068
Ol. Menthæ Pip., . . .	.900	1.111
Ol. Morrhuæ, ...	.920	1.087
Ol. Olivæ, ...	.916	1.092
Ol. Ricini, ...	.960	1.042
Ol. Rosmarini, ...	.900	1.111
Ol. Sassafras, ...	1.091	.917
Ol. Sesami, ...	.918	1.089
Ol. Terebinthinæ, . . .	.862	1.160
Spt. Ætheris Nitrosi, .	.824	1.214
Spt. Frumenti, ...	.920	1.087
Spt. Vini Gallici, . . .	.930	1.075
Syrupus Simplex, . . .	1.310	.763
Vinum Album, ...	1.000	1.000
Vinum Rubrum, ...	1.000	1.000

TABLE SHOWING THE NUMBER OF DROPS IN A FLUIDRACHM OF VARIOUS LIQUIDS, ALSO THE WEIGHT OF ONE FLUIDRACHM IN GRAINS.

(COMPARE PAGE 438.)

Liquid.	Drops in fʒj. (♏lx.)	Weight of fʒj in grains.	Liquid.	Drops in fʒj. (♏lx.)	Weight of fʒj in grains.
Acetum Opii, ...	90	61	Liq. Iodi Compos, ...	63	59
Acetum Scillæ, ...	68	57	Liq. Potassæ, ...	62	58
Acid. Acetic, ...	108	58	Liq. Zinci Chloridi, ...	89	88
Ac. Acetic. Dil., ...	68	55	Oleores. Aspidii, ...	130	52
Acid, Carbolic, ...	111	59	Oleores. Capsici, ...	120	51
Ac. Hydrochloric, . . .	70	65	Oleores. Cubebæ, ...	123	52
Ac. Hydrocyanic, ...	60	54	Oleum Anisi, ...	119	54
Acid, Lactic, ...	111	66	Oleum Bergamii, ...	130	46
Acid, Nitric, ...	102	77	Oleum Cari, ...	132	50
Ac. Nitro-hydrochlor., .	76	66	Oleum Juniperi, ...	148	49
Ac. Phosphor. Dil., . . .	59	57	Oleum Limonis, ...	129	47
Ac. Sulphuric, ...	128	101	Oleum Ricini, ...	77	51½
Ac. Sulph. Aromat., . .	146	53	Oleum Rosæ, ...	132	47
Ac. Sulph. Dil., ...	60	58½	Oleum Terebinth, ...	136	45½
Ac. Sulphurosum, ...	59	55	Oleum Tiglii, ...	104	50
Æther Fortior, ...	176	39	Spt. Ætheris Comp., . . .	148	45
Alcohol, ...	146	44	Spt. Ætheris Nitrosi, . . .	146	47
Aqua, ...	60	55	Spt. Camphoræ, ...	143	47
Aqua Destillata, ...	60	53½	Syrupus Simplex, ...	65	72
Bals. Peruvian, ...	101	60	Syrupus Acaciæ, ...	44	73
Bromine, ...	250	165	Syrupus Ferri Iod., ...	65	77
Chloroform, Pur., ...	250	80	Syrupus Scillæ, ...	75	74
Copaiba, ...	110	51	Syr. Scillæ Comp., ...	102	70
Creasote.	122	56½	Syrupus Senegæ, ...	106	70
Ext. Belladon. Fl., . . .	156	57	Tinctura Aconiti, ...	146	46
Ext. Buchu Fl., ...	150	47½	Tinctura Belladonnæ, . . .	137	53
Ext. Digitalis Fl., . . .	134	62	Tinct. Benzoini Comp., . .	148	48
Ext. Ergotæ Fl., ...	133	60	Tinct. Cantharidis, ...	131	51
Ext. Ipecac. Fl., ...	120	60	Tinct. Digitalis, ...	128	53
Ext. Rhei Fl., ...	158	61	Tinct. Ferri Chlor., ...	150	53
Ext. Senegæ Fl., ...	137	62	Tinct. Iodi, ...	148	47
Ext. Valerianæ Fl., ...	150	49	Tinct. Opii, ...	130	53
Ext. Zingib. Fl., ...	142	48	Tinct. Opii Camph., . . .	130	52
Glycerin, ...	67	68	Tinct. Opii Deodor., . . .	110	54
Hydrarygyrum, ...	150	760	Vin. Colchici Rad., ...	107	55
Liq. Acidi Arseniosi, . . .	57	55	Vin. Colchici Sem., ...	111	54
Liq. Ferri Chloridi, . . .	71	72	Vinum Opii, ...	100	55

WEIGHTS AND MEASURES.

APOTHECARIES' OR TROY WEIGHT.

Pound.		*Ounces.*		*Drachms.*		*Scruples.*		*Grains.*
℔.		℥.		ʒ.		℈.		gr.
1	=	12	=	96	=	288	=	5760
		1	=	8	=	24	=	480
				1	=	3	=	60
						1	=	20

APOTHECARIES' OR WINE MEASURE.

Gallon.		*Pints.*		*Fl'ounces.*		*Fl'dr'ms.*		*Minims.*
C.		O.		f℥		fʒ		♏.
1	=	8	=	128	=	1024	=	61440
		1	=	16	=	128	=	7680
				1	=	8	=	480
						1	=	60

METRIC WEIGHTS.

1 Milligram, ...	0.001	= gr. $\frac{1}{65}$
1 Centigram, ...	0.01	= gr. $\frac{1}{6}$
1 Decigram, ...	0.1	= gr. $1\frac{1}{2}$
1 GRAM, ...	1.	= gr. 15.432
1 Kilogram, ...	1000.	= ℔ 2.7

APPROXIMATE EQUIVALENTS.

1 ♏ or 1 gr., ... = .06 grams.
1 fʒ or 1 ʒ, ... = 4. "
1 f℥, ... = 30. "
1 ℥, ... = 31. "
1 f℥ Glycerin, ... = 37. "
1 f℥ Syrups, ... = 40. "

TABLE FOR CONVERTING APOTHECARIES' WEIGHTS AND MEASURES INTO GRAMS.

(Maisch.)

Troy Weight.	Metric.	Apothecaries' Measure.	Grams for Liquids.		
Grains.	Grams.		Lighter * than Water.	Specific Gravity † of Water.	Heavier ‡ than Water.
1/64	.001	♏ 1	.055	.06	.08
1/40	.0015	2	.10	.12	.15
1/30	.002	3	.16	.18	.24
1/20	.003	4	.22	.24	.32
1/16	.004	5	.28	.30	.40
1/12	.005	6	.32	.36	.48
1/10	.006	7	.38	.42	.55
1/8	.008	8	.45	.50	.65
1/6	.010	9	.50	.55	.73
1/4	.016	10	.55	.60	.80
1/3	.02	15	.80	.72	.96
1/2	.03	16	.90	1.00	1.32
1	.065	20	1.12	1.25	1.60
2	.13	25	1.40	1.55	2.00
3	.20	30	1.70	1.90	2.50
4	.26	35	2.00	2.20	2.90
5	.32	40	2.25	2.50	3.30
6	.39	48	2.70	3.00	4.00
8	.52	50	2.80	3.12	4.15
10	.65	60 fʒj	3.40	3.75	5.00
15	1.00	72	4.00	4.50	6.00
20 ℈j	1.30	80	4.50	5.00	6.65
24	1.50	90	5.10	5.60	7.50
26	1.62	96	5.40	6.00	8.00
30 ʒss	1.95	100	5.60	6.25	8.30
40	2.60	120 fʒij	6.75	7.50	10.00
50	3.20	160	9.00	10.00	13.30
60 ʒj	3.90	180 fʒiij	10.10	11.25	15.00
120 ʒij	7.80	240 f℥ss	13.50	15 00	20.00
180	11.65	fʒv	16.90	18.75	25.00
240 ℥ss	15.50	fʒvj	20.25	22.50	30.00
300	19.40	fʒvij	23.60	26.25	35.00
360	23.30	f℥j	27.00	30.00	40.00
420	27.20	f℥ij	54.00	60.00	80.00
480 ℥j	31.10	f℥iij	81.00	90.00	120.00
℥ij	62.20	f℥iv	108.00	120.00	160.00
℥iv	124.40	f℥v	135.00	150.00	200.00
℥vi	186.60	f℥vj	162 00	180.00	240.00
℥viij	248.80	f℥viij	216.00	240.00	320.00

* Lighter than water are tinctures, spirits, compound spirit of ether, sweet spirit of nitre, fixed and volatile oils. Æther Fortior, fʒj = grams 2.80.

† Same as water are waters, liquids, decoctions, infusions, most fluid extracts, and tinctures made with dilute alcohol.

‡ Heavier than water are syrups, glycerin, a few fluid extracts, and chloroform. Of the latter, fʒj = grams 5.50.

INDEX.

NOTE.—This Index has been arranged with the object of enabling instant reference to be made to the mention of every article of the Materia Medica, every drug, official or unofficial, and each preparation, derivative or constituent thereof, which is treated of in the first part of the book, every article, preparation or operation discussed in the pharmaceutical portion, and every disease or other title contained in the therapeutical section. Many of the entries are only made once, but double and even treble entries are made for every item which seemed of sufficient importance to warrant such repetition.

Salts are each placed but once in the Index, under their English names and the titles of their acid factors, thus, *Acetate of Potassium*. A basic view of the salts under their basis titles is seen in the section on Materia Medica, but as no such view of the Allyl, Ethyl, Methyl, Propyl and similar compounds exists in the book, these are each indexed twice, under both the acid and basic portions of their names, as *Cetyl Palmitate* and *Palmitate of Cetyl.*

Plants are indexed under both English and Latin names, except where the technical name of the plant corresponds in part with the official drug-title, in which case the one entry serves for both. Thus the entry *Conium* answers for the plant *Conium maculatum*, as well as for the official drug; but the drug *Nux Vomica* and the plant *Strychnos Nux-vomica* receive separate index entries.

Alkaloids are each entered once only and under their chemical termination, *ine;* their salts following the same rule as other salts.

Glucosides and similar principles (except such as are acids) are indexed under their chemical termination, *in.*

Preparations are indexed under their Latin names where the reference is to the class, as *Infusa*, 422; but the several individual preparations are placed under their English titles, thus, *Infusion of Digitalis*, 199; the reference being to the Infusum Digitalis, page 199.

Abbreviations, their use, 443
  Table of, 443, 691
Abdominal Plethora, 480
Abies, 315
Abies balsamea, 384
  canadensis, 315
  excelsa, 315
Abietic Anhydride, 385
Abortion, 48, 480
Abrus, 55
Abscess, 481
  of the Liver, 590
Absinthe, 56
Absinthium, 55
Abstract of Aconite, 76
  of Belladonna, 126
  of Conium, 186
  of Digitalis, 199
  of Hyoscyamus, 248
  of Ignatia, 250
  of Jalap, 258
  of Nux Vomica, 288
Abstract of Podophyllum, 320
  of Senega, 363
  of Valerian, 394
Abstracta, 429
Acacia, 56
  Catechu, 159
Aceta (see also Vinegars), 428
Acetanilide, 56
Acetate of Copper, 194
  of Ethyl, 79
  of Iron, 215
  of Iron and Ammonium, 217
  of Lead, 317
  of Morphine, 293
  of Potassium, 322
  of Sodium, 369
  of Zinc, 403
Acetic Ether, 79
Acetous Preparations, 428
Acetum, 58
Acid Abietic, 334
  Abric, 55

- Acid Acetic, 58
  - Aconitic, 76
  - Agaric, 83
  - Aloëtic, 90
  - Anemonic, 328
  - Angelic, 380, 390
  - Arabic, 56
  - Arsenious, 116
  - Artanthic, 277
  - Benzoic, 129, 179
  - Boracic, 59
  - Boric, 59
  - Brassic, 367
  - Calumbic, 145
  - Camphoric, 147
  - Camphretic, 147
  - Capronic, 114
  - Caprylic, 114
  - Carbazotic, 72
  - Carbolic, 60, 179
    - Solutions of, 60
    - Gauze, 60
  - Carminic, 183
  - Caryophyllic, 157
  - Caryophyllinic, 157
  - Catechuic, 159
  - Catechu-tannic, 159
  - Cathartic, 364
  - Cathartogenic, 364
  - Cerotic, 160
  - Cetraric, 161
  - Cevadic, 396
  - Chelidonic, 162, 353
  - Chromic, 62
  - Chrysammic, 90
  - Chrysophanic, 174, 344
  - Cinnamic, 124, 129, 376
  - Citric, 266
  - Coca-tannic, 208
  - Copaibic, 189
  - Cresylic, 60
  - Cubebic, 193
  - Ergotic, 204
  - Ergotinic, 204
  - Erucic, 367
  - Eugenic, 284
  - Euonic, 213
  - Euphrastic, 214
  - Filicic, 121
  - Fluoric, 63
  - Gallic, 63, 223
  - Gallo-tannic, 74
  - Gambogic, 146
  - Gelsemic, 224
  - Gentesic, 225
  - Gentianic, 225
  - Glycyrrhizic, 228
  - Guaiac, 232
  - Guaiaconic, 232
  - Guaiarec, 232
  - Gurjunic, 234
  - Gynocardic, 162
  - Hydriodic, 252
- Acid Hydrobromic, 64
  - Hydrochloric, 65
  - Hydrocyanic, 67
  - Hypopicrotoxic, 310
  - Igasuric, 288
  - Ipecacuanhic, 256
  - Juglandic, 259
  - Kinic, 177
  - Kinotannic, 177, 261
  - Kinovic, 177
  - Kinovo-tannic, 177
  - Lactic, 69, 292
  - Lactucic, 263
  - Linoleic, 268
  - Lobelic, 269
  - Lupulinic, 238
  - Maizenic, 402
  - Malic, 126
  - Mastichic, 277
  - Meconic, 292
  - Melassic, 347
  - Methyl-salicylic, 224
  - Mezereinic, 281
  - Muriatic, 65
  - Myristic, 285
  - Nitric, 70
  - Nitro-hydrochloric, 65, 70
  - Nitro-muriatic, 65, 70
  - Oleic, 71, 290
  - Ophelic, 164
  - Oxalic, 48, 487
  - Palmaric, 334
  - Palmitic, 290
  - Phenic, 60
  - Phosphoric, 71
  - Phytolaccic, 309
  - Picric, 72
  - Picrotoxic, 310
  - Pinic, 334
  - Piperonylic, 191
  - Podophyllinic, 320
  - Polygonic, 321
  - Protocatechuic, 320
  - Prussic, 67
  - Punico-tannic, 230
  - Pyrogallic, 63, 179
  - Pyroligneous, 315
  - Quercitannic 74, 332
  - Rhatania-tannic, 74, 262
  - Rheotannic, 336
  - Rheumic, 336
  - Ricinoleic, 340
  - Sabadillic, 396
  - Salicylic, 179, 349
  - Salicylous, 349
  - Salicyluric, 350
  - Sanguinarinic, 353
  - Scheele's, 67
  - Sclerotinic, 204
  - Silvic, 334
  - Sphacelinic, 205
  - Strychnic, 288
  - Sulphuric, 72

- Acid Sulphuric, Aromatic, 72
  - Sulphurous, 73
  - Succinic, 91
  - Tannic, 74, 223
  - Tannic and Iron, 453
  - Tartaric, 75
  - Thebolactic, 292
  - Tiglinic, 390
  - Toxicodendric, 339
  - Tropic, 126, 247
  - Valerianic, 380, 393
  - Vanillic, 395
  - Veratric, 396
  - Viburnic, 399
  - Xylic, 60
- Acids, their action, 36, 65
- Acidity, 481
- Acipenser Huso, 249
- Acne, 482
- Aconine, 76
- Aconite, 75
- Aconitine, 76
- Aconitum, 75
  - Cammarum, 76
  - Chinense, 76
  - ferox, 76
  - Japonicum, 76
  - Napellus, 76
- Acorin, 143
- Acorus Calamus, 143
- Acrinyl, Sulpho-cyanate, 367
- Acroleïn, 227
- Addison's Disease, 483
- Administration of Medicines, 20
- Adynamia, 483
- Adeps, 78
  - Benzoinatus, 78
- Æther, 78
- Æther, Acetic, 79
- After-pains, 484
- Agalactia, 484
- Agaricin, 83
- Agaricus albus, 83
  - chirurgorum, 83
  - muscarius, 84
- Agave Americana, 90
- Ague, see Intermittent Fever, 598
- Ailanthus glandulosa, 85
- Albau, 234
- Albumin, 400
- Albuminate of Iron, 217
  - of Mercury, 244
- Albuminuria, 484
- Alcohol, 85
  - Caustic, 369
  - Phenylic, 60, 87
- Alcoholic Preparations, 423
  - strength of Bitters, 704
- Alcoholism, 87, 485
- Aldehyde, 87
  - Proto-catechuic, 395
- Alder bark, 64, 89
- Alder, Black, 327
- Alder, Buckthorn, 221
- Ale, 86
- Alkalies, their action, 36
- Alkaline Mineral Waters, 109
- Alkaloids, 409
- Allium cepa, 89
  - porrum, 89
  - sativum, 89
- Allspice, 313
- Allyl Sulphide, 119
  - Sulpho-cyanide, 367
- Almond, 67, 96
- Alnus, 64, 89
- Aloë socotrina, 89
- Aloes, 89
- Alopecia, 486, 673
- Alstonia scholaris, 202
- Alteratives, 41
  - Uterine, 48
- Althæa officinalis, 91
- Alum, 91
- Alum, Ammonio-ferric, 217
- Alum root, 64
- Alumen, 91
- Alumen Exsiccatum, 91
- Aluminium, 92
- Amanita Muscaria, 84
- Amaurosis, 486
- Amber, 377, 385
- Amblyopia, 30, 486
- Amenorrhœa, 486
- Amido-benzene, 179
- Ammonia, 93
- Ammonia-alum, 91
- Ammoniated Mercury, 240
- Ammoniacum, 93
- Ammonium, 93
- Amorphous Bodies, 415
- Amygdala, 96
  - Amara, 67, 96
  - Dulcis, 97
- Amygdalin, 67, 97
- Amyl Chloride. 81
  - Hydrate, 87
  - Hydride, 81
  - Nitrite, 98
- Amylene, 81
  - Hydrate, 165
- Amylic Alcohol, 87
- Amylum, 100, 348
  - Iodatum, 100, 252
- Anæmia, 488
  - cerebral, 512
- Anæsthesia, 80, 171, 489
  - Local, 209
- Anæsthetics, 25, 27, 80, 81, 171
  - Local, 25
  - Mixtures, 79
  - Modes of using, 171
- Añacyclus Pyrethrum, 330
- Analgesics, 27
- Anamirta paniculata, 310
- Anaphrodisiacs, 47

Anaphrodisiac Pills, 468
Anasarca, see Dropsy, 540
Andira Araroba, 174
Anemone, Meadow, 328
    patens, 328
    pratensis, 328
    Pulsatilla, 328
Anemonin, 328
Aneurism, 489
Angelate of Butyl, 101
Angina.—See Croup, Laryngitis, Pharyngitis, Throat, Tonsillitis, etc.
Angina Pectoris, 489
Anhidrotics, 46
Anilin, 179
Anilin Red, 222
Anise, 100
    Star, 100
Anodynes, 25, 27
    Local, 25
Ant-acids, 36
Antagonists, 52
    List of, 53, 451
Anthelmintics, 40
Anthemis, 101
Anthrax.—See Carbuncle, 507
Antibilious Pills, 469
Antidote, Jeaunel's, 707
Antidote-bag, 708
Antidotes, 52, 707
Anti-emetics, 37
Anti-fat, 222
Antifebrin, 56
Antilithics, 45
Antimonial Powder, 102
Antimony, 102
    Sulphurated, 102
Antiperiodics, 43
Antiphlogistics, 43
Antipyretics, 42
Antipyrine, 104
Antiseptic Fluid, 389
Antiseptics, 51, 389
Antisialics, 35
Antispasmodics, 28
Antizymotics, 51
Anus, Fissured, 490
    Prolapse of, 647
Aperients, 38, 468
Aphonia, 490
Aphrodisiacs, 47
Aphthæ, 491
Apiin, 106
Apiol, 106
Apis mellifica, 160, 278
Apnœa, 721
Apocynin, 107
Apocynum, 107
Apomorphine, 107, 292
Apoplexy, 491
Apotheme, 429
Appetite, 491
Approximate Measures, 438
Aqua, 108
    Bulliens, 108
    Carbonata, 108
    Communis, 108
    Destillata, 108
    Fervens, 108
    Fluvialis, 108
    Fontana, 108
    Marina, 108
    Pluvialis, 108
Aquæ (see also Water of), 419
Aqueous Preparations, 419
Arabin, 56, 391
Arbor Vitæ, 385, 388
Arbutin, 163, 180, 223, 393
Arctostaphylos glauca, 393
    Uva-ursi, 392
Argentum, 112
Argol, 322
Argyria, 113
Aristolochia reticulata, 365
    Serpentaria, 365
Aristolochine, 365
Arnica, 114
Arnicin, 114
Aromatic Fluid Extract, 183
Aromatic Powder 103
Aromatic Sulphuric Acid, 72
Arseniate of Iron, 217
    of Sodium, 116
Arsenic, 116
Arsenite of Bromine, 117
    of Copper, 117, 709
    of Potassium, 116
Arsenium, 116
Artemisia Absinthium, 55
    maritima, 355
Arterial Transfusion, 20
Artanthe elongata, 277
Asafœtida, 119
Asagræa officinalis, 396
Ascarides.—See Worms, 688
Ascites, 492
Asclepias, 120
Ash, Flowering, 276
    Prickly, 401
Asparagin, 91, 213, 228
Asphyxia, 721
Aspidium, 121
Aspidosperma Quebracho, 331
Aspidospermine, 331
Asthenia.—See Adynamia, Convalescence, Atrophy.
Asthenopia, 492
Asthma, 492
Astigmatism, 494
Astragalus gummifer, 391
Astringents, 42, 50, 64, 468
    Intestinal, 39
    Powder, 472
    Urinary, 45
Atheroma, 494
Atrophy, 494

Atropine, 126
  and Morphine, 299, 702
Atrosin, 126
Aurantiin, 121
Aurantium, 121
Aurum, 122
Ava-kava, 261
Avena Sativa, 123
Ayer's Ague Cure, 704
  Cherry Pectoral, 704
  Pills, 704
  Recamier Balm, 704
    Cream, 704
  Sarsaparilla, 704
  Vita Nuova, 704
Azedarach, 123
Azoturia.—See Urinary Disorders, 680
Azulen, 278

Balanitis, 494
Baldness.—See Alopecia, 486, 673
Balm, 279
  of Gilead, 384
Balnea, 462
Balneum Maris, 108
  Vaporis, 108
Balsam of Copaiba, 189
  of Fir, 384
  Friar's, 129, 376
  of Peru, 124
  of Tolu, 124
Balsamodendron Myrrha, 285
Balsamum Dipterocarpi, 233
  Peruvianum, 124
  Tolutanum, 124
Bandoline, 197
Baptisia, 125
Baptisin, 125
Barberry, 129
Bark, Cuprea, 176
  Peruvian, 176
  Tincture of, 177
Barley, 273
Barosma, 137
Barosmin, 137
Basham's Mixture, 217
Basilicon Ointment, 334
Bassorin, 391
Baths, Formulæ, 462
Bay-berry, 284
Bay Rum, 284
Bear-berry, 392
Bed-sores, 495
Beer, 86
Belladonna, 125
Belladonnine, 125
Benné Oil, 366
Benzene, 128, 179
Benzin, 128
Benzoate of Ammonium, 94, 129
  of Lithium, 129, 268
  of Sodium, 129
Benzoin, 129
Benzoinated Lard, 129
Benzol, 128, 179
Benzyl Cinnamate, 124
Berberine, 129, 145, 246, 320, 401
  Muriate of, 129, 246
Berberis, 129
Bergamium, 130
Bergamot, Oil of, 131
Bergaptene, 130
Beta-naphthol, 286
Beta vulgaris, 347
Bhang, 150
Bibliography and References, 479
Bicarbonate of Potassium, 322
  of Sodium, 369
    commercial, 369
Bichloride of Ethene, 81
  of Ethylene, 169
  of Mercury, 239
  of Methylene, 170
Bichlorinated Chloride of Methyl, 168
Bichromate of Potassium, 62
Bile, Agents affecting the, 40
Biliary Solvents, 45
Biliousness, 495
Bilious Remittent Fever, 717
Bind-weed, 237
Biniodide of Mercury, 240
Bird-lime, 400
Bismuth, 131
Bismuth Mixture for Children, 457
Bisulphate of Quinine, 177
Bisulphide of Carbon, 81, 154
Bisulphite of Sodium, 73
Bitartrate of Potassium, 323
Bites and Stings, 667
Bitters, Action of the Simple, 146
  Alcoholic Strength of, 704
Bittersweet, 203
Black-berry, 64, 343
  Bark, 343
Black Draught, 364
  Drop, 293
  Paste, 571
Bladder, Inflammation of, 529
  Irritable, 496
  Paralysis of, 496
Bladder-wrack, 222
Blende, 403
Blepharitis, 496
Blistering Cerate, 151
Blisters, 49
Blood-root, 352
Blood-stains, 666
Blue Flag, 257
  Mass, 239
  Ointment, 239
  Pill, 239
Boiling, 411
Boils, 496
Boldine, 132
Boldo, 132

Boldus, 132
Bolus, 463
Bone Diseases, 497
Boneset, 213
Borate of Quinine, 178
    of Sodium, 59
Borax, 59
Boro-citrate of Magnesium, 59
Boro-glyceride, 59
Bos-taurus, 214
Bots, 124
Bougies, Formulæ for, 475
Boxwood, 301
Brain Disorders.—See Cerebral Anæmia, Cerebral Concussion, etc.
    Fever.—See Meningitis, Cerebro-spinal Meningitis, Typhoid Fever, Typhus Fever.
Brandreth's Pills, 704
Brandy, 86
Brayera, 132
Breasts.—See Abscess, Lactation, Mastitis, Nipples.
Breath, Fetid, 497
Bright's Disease, Acute, 497
    Chronic, 498
    Diagnosis, 712
Bromide of Ammonium, 94, 133
    of Arsenic, 117
    of Calcium, 133
    of Ethyl, 79
    of Iron, 133, 215
    of Lithium, 133, 268
    of Methyl, 81
    of Potassium, 133
    of Sodium, 133
    of Zinc, 133
Bromidrosis, 559
Bromine and Bromides, 133
Bromism, 134
Bronchiectasis, 499
Bronchitis, Acute, 499
    Capillary, 500
    Chronic, 501
Bronchocele.—See Goitre, 569
Bronchorrhœa, 502
Broom, 360
Brown Mixture, 228
Brucine, 237, 250, 288
Bruises, 503
Bryonia, 135
Bryonin, 136
Bubo, 503
Buchu, 137
    Helmbold's, 705
Buckthorn, 158, 221
Bulimia, 491
Bunion, 504
Burdock, 264
Burnett's Disinfectant, 52, 403
Burns, 504
Bursitis, 504
Butternut, 259
Butyl Angelate, 101
Butyl-chloral Hydrate, 168
    Chloride, 81
    Hydride, 81
    Valerianate, 101
Buxine, 301
Buxus sempervirens, 301

Cacao-butter, 387
Cachets, 471
Cachexiæ, 504
Cadmium, 137
Caffea, 138
Caffeine, 138
Cajuput Oil, 142
Cajuputene Bihydrate, 142
Cajuputol, 142
Calabar Bean, 307
Calabarine, 307
Calamine, 403
    Ointment, 405
Calamus, 143
Calcination, 412
Calcium, 143
Calculi, Biliary, 505
    Renal, 505
    Solvents of, 45
    Vesical, 505
Calendula, 145
Calomel, 240
Calumba, 145
Calx, 143
    Chlorata, 172
    Sulphurata, 378
Cambogia, 146
Camellia Thea, 138, 139,
Camp Fever.—See Typhus, 677
Camphor, 147
    Baldrian, 393
    Bergamot, 131
    Carbolated, 148
    -Chloral, 148
    -Cymol, 147
    Monobromated, 147
    Peppermint, 280
    Salicylated, 148
Canadian Hemp, 107
Cancer, 506
    Diagnosis of, 713
    of Uterus, 681
Cancrum Oris, 507
Cane Sugar, 347
Cannabene, 149
Cannabin, 149, 165
Cannabis, 149
    Americana, 149
    Indica, 149
    sativa, 149
Cantharides, 151, 229
Cantharidin, 151
Cantharis, 151
Capsicin, 153

- Capsicum, 153
- Capsules, 469
- Caraway, 156
- Carbo, 154
  - Animalis, 154
    - Purified, 154
  - Ligni, 154
- Carbolate of Iodine, 251
- Carbon, 154
  - Bisulphide, 154
  - Dioxide, 81, 348
  - Monoxide, 81
  - Tetrachloride, 170
- Carbolate of Iodine, 252
- Carbonei Bisulphidum, 154
- Carbonate of Ammonium, 94
  - of Calcium, Precipitated, 143
  - of Iron, 215
    - Saccharated, 215
  - of Iron and Manganese, 275
  - of Lead, 317
  - of Lithium, 268
  - of Magnesium, 271
  - of Potassium, 322
  - of Sodium, 369
    - Dried, 369
  - of Zinc, Precipitated, 403
- Carbonated Mineral Waters, 108
- Carbonization, 412
- Carbuncle, 507
- Carcinoma.—See Cancer, 506
- Cardamom, 155
- Cardiac Disorders.—See Heart.
  - Sedatives, 33
  - Stimulants, 33
  - Tonics, 33
- Cardialgia.—See Pyrosis, 653
- Carduus, 156
- Carica Papaya, 300
- Caries, 508
- Carminatives, 37
  - Dewees', 272
- Carmine, 183
- Caroval, 196
- Carron Oil, 144, 268
- Carthamus tinctorius, 192
- Caruen, 156
- Carum, 156
- Caruol, 156
- Caryophyllin, 157
- Caryophyllus, 156
- Casca Bark, 157
- Cascara Amarga, 157
  - Sagrada, 158
- Cascarilla, 158
- Cascarillin, 158
- Cassia acutifolia, 364
  - elongata, 364
  - Fistula, 159
- Castanea, 64, 159
  - vesca, 159
- Castor Oil, 340
  - Emulsion; Formula, 524
- Castoria, 704
- Catalepsy, 508
- Cataplasmata, 477
- Cataract, 508
- Catarrh, Acute Nasal, 509
  - Broncho-pulmonary.—See Bronchitis, Bronchorrhœa.
  - Chronic Nasal, 510
  - Duodenal, 541
  - Epidemic.—See Influenza, 597
  - Gastric.—See Gastritis, Chronic, 566
  - Genito-urinary.—See Bladder, Catarrh of, Cystitis, Endometritis, Gonorrhœa, Leucorrhœa, etc.
  - Intestinal.—See Dysentery, Jaundice, etc.
  - Summer.—See Hay Fever, 573
- Catechol, 180
- Catechu, 64, 159
- Cathartics, 38
- Catharto-mannite, 364
- Caulophyllin, 160
- Caulophyllum, 160
- Caustic, Lunar, 112
  - Potash, 322
  - Soda, 368
- Caustics, 49
- Cedar, Oil of, 354
  - Red, 346
- Celandine, 162
- Cellulose, 229, 348
- Centaurea benedicta, 156
- Cephaëlis Ipecacuanha, 256
- Cephalalgia, 575
- Cera, 160
- Cera Alba, 160
  - Flava, 160
- Cerata, 433, 475
- Cerate of Camphor, 147
  - of Cantharides, 151
  - of Cantharides Extract, 151
  - of Cetaceum, 161
  - of Lead Subacetate, 318
  - of Resin, 334
  - of Sabine, 346
- Cerates, 433, 475
  - Compounding of, 475
- Ceratum, 160, 433
- Cerebellum, Agents affecting, 28
- Cerebral Anæmia, 512
  - Compression, Diagnosis, 713
  - Concussion, 512
    - Diagnosis, 713
  - Congestion, 512
  - Depressants, 26
  - Excitants, 26
  - Softening, 512
  - Vomiting—Diagnosis, 717
- Cerebro-spinal Fever, 615
- Cerium Oxalate, 161
- Cerolein, 160
- Cetaceum, 161
- Cetin, 161

Cetraria, 161
Cetyl Palmitate, 161
Cevadilla, 396
Cevadilline, 396
Cevadine, 396
Chalk, Prepared, 143
Chalybeate Waters, 109
Chamomile, 101
    German, 278
Chamomilla, 278
Chancre, 513
    Diagnosis of, 713
Chancroid, 513
    Diagnosis of, 713
Change of Life—See Climacteric, 518
Chapped Hands and Lips, 513
Charcoal, 154
Chartæ (see also Papers), 434
Chartulæ, 471
Chaulmoogra Oil, 162
Chelerythrine, 162
Chelidonine, 162
Chelidonium, 162
Chelidoxanthin, 162
Chelsea Pensioner, 470, 659
Chemical Incompatibility, 448
Chenopodium, 162
Cherry-laurel, 67, 68
Cherry, Wild, 327
Chestnut, 159
Chestnut-leaves, 64
Chest-pains, 513
Chain Turpentine, 384
Chicken-pox, 514, 684
Chilblains, 514
Children, Dosage for, 22
Chimaphila, 163
Chimaphilin, 163
China, Pride of, 123
Chininum Amorphum Boricum, 178
Chinoidin, 178
Chinoline, 163, 179
Chiratin, 164
Chiretta, 164
Chittem Bark, 158
Chloral, 165
    Butylic, 168
    Hydrate, 165
Chloral-habit, 167
Chlorate of Potassium, 322
    of Sodium, 369
Chloride of Ammonium, 94
    of Amyl, 81
    of Arsenic, 85
    of Butyl, 81
    of Calcium, 143
    of Cocaine, 208
    of Ethene, 81
    of Ethyl, 81
    of Ethylidene, 170
    of Gold, 122
    of Gold and Sodium, 122
        Double, 704
Chloride of Iron, 215
    of Lime, 172
    Mercur-ammonium, 240
    of Mercury, Corrosive, 239
        Mild, 240
    of Methane, 81, 170
    of Methyl, 81, 170
    of Sodium, 369
    of Zinc, 403
Chlorinated Waters, 108
Chlorine, 172
Chlorine-water, 172
Chlorodyne, 169
    Formulæ for, compared, 703
Chloroform, 80, 168
    Commercial, 169
    Methylic, 169
    Purified, 169
Chlorosis, 514
Chlorum, 172
Chocolate, 387
Choking, 515
Cholagogues, 39
    Pills, 468
    Purgatives, 38
Cholera Asiatica, 515
    Infantum, 515
    Simplex, 516
    Diagnosis of, 714
Cholera Mixture (Squibb), 293, 515
Cholesterin, 400
Chondodendron tomentosum, 301
Chondrus, 174
Chordee, 517
Chorea, 517
Choroiditis, 518
Chrysarobin, 174
Chrysophan, 336
Churrus, 149
Cigarettes, Formulæ for, 493
Ciliary Excitants, 33
Cimicifuga, 174
Cimicifugin, 175
Cinchona, 176
    Flava, 176
    Rubra, 176
Cinchonidine, 177
Cinchonine, 177
Cinchonism, 181
Cinnabar, 240
Cinnamein, 124
Cinnamomum, 182
    Camphora, 147
Cinnamon, 182
Cinquefoil, 636
Circulation, Agents affecting, 33
Circumcision, 639
Cissampeline, 301
Cissampelos Pareira, 301
Citrate of Bismuth, 131
    of Bismuth and Ammonium, 131
    of Caffeine, 138
    of Cocaine, 208

Citrate of Iron, 215
    of Iron and Ammonium, 217
    of Iron and Quinine, 217
    of Iron and Strychnine, 217
    of Lithium, 268
    of Magnesium, Granulated, 272
    of Potassium, 322
Citrates, 266
Citrine Ointment, 240
        Brown, 240
Citron, 266
Citrullus Colocynthis, 185
Citrus acris, 266
    Aurantium, 121
    Bergamia, 131
    Limonum, 266
    medica, 266
    vulgaris, 121
Clarification, 415
Classification of Medicines, 23
Claviceps purpurea, 204
Clavus.—See Headache, 575
Clemen's Solution, 117
Climacteric Disorders, 518
Cloves, 156
Club-moss, 270
Clysters, 461
Cnicin, 156
Cnicus benedictus, 156
Coca, 130, 208
Cocaine, 208
Cocaine-habit, 209
Cocculus Indicus, 310
Coccus, 183
Coccyodynia, 518
Cochineal, 183
Cocoa, 140
Codamine, 292
Codfish, 282
Codeine, 292, 294
Cod-liver Oil, 282
        Emulsion, 282
Coffee, 138
Cohosh, Black, 174
    Blue, 160
Colation, 414
Colchiceine, 184
Colchicine, 184
Colchicum, 184
Coldness, 518
Colic, Hepatic, 520
    Intestinal, 518
    Lead, 519
    Renal, 520
Colic-root, 201
Collodia, 427
Collodion, 229
    with Cantharides, 151, 229
    Flexible, 229, 427
    Styptic, 74, 229, 427
Colloids, 416
Collunarium, 461
Collyrium, 460
Collyrium, Formulæ for, 460
    of Four Sulphates, 460
Colocynth, 185
Colocynthein, 185
Colocynthin, 185
Colocynthis, 185
Colocynthitin, 185
Cologne-water, 86
Colophony, 334, 385
Columbo, 145
Coma, 520
Combination, Principles of, 441
Comminution, 412
Compounding Medicines, 434
    a Mixture, 456
Condylomata, 520
Condy's Fluid, 52
Confectio Damocratis, 470
Confection of Rose, 342
    of Senna, 364
Confectiones, 431, 470
    Formulæ for, 470
Conhydrine, 186
Coniïne, 186
Conium, 186
Conjunctivitis, Catarrhal, 520
    Diphtheritic, 521
    Gonorrhœal, 521
    Granular, 522
    Phlyctenular, 522
    Purulent, 522
Conspergative, 463, 464
Constipation, 523
Constituents of Drugs, 408
Convalescence, 524
Convallamarin, 188
Convallaria Majalis, 187
Convallarin, 188
Convolvulin, 258, 359
Convolvulus Scammonia, 359
Convulsions, 524
    Infantile, 525
    Puerperal, 650
Copaiba, 189
    Emulsion, 459
Copaifera Langsdorffii, 189
Copper, 194
Cordial, Cascara, 158
Coriander, 190
Coriandrum, 190
Corneal Opacities, 525
Corneitis.—See Keratitis, 603
Corn, Indian, 402
    Silk, 402
    Smut, 402
Cornin, 190
Corns, 525
Cornus, 190
Cornutin, 205
Corpulence.—See Obesity, 626
Corrosive Sublimate, 239
Coryza.—See Catarrh, Acute, 509
Coto Bark, 190

Cotoin, 190
Cosmoline, 304
Cotton, 229
  Iodized, Formula for, 581
Cotton-seed Oil, 229
Couch-grass, 392
Cough, 526
  Mixtures, Formulæ for, 527, 597, 638
Counter-irritants, 49
Court Plaster, 249
Coxalgia, 527
Coxe's Hive Mixture, 102, 360
Crab Lice.—See Pediculi, 635
Cramp Bark, 399
Cramps.—See Trismus, Spasmodic Affections.
Cranberry Tree, 399
Cranesbill, 64, 226
Cream, Cold, 342
  of Tartar, 323
Creasol, 191
Creasote, 61, 191
Creta Præparata, 143
Crocus, 192
Croton-chloral, 165, 168
Croton Eluteria, 158
  Oil, 390
  Tiglium, 390
Croup, Catarrhal, 528
  Membranous, 528
  Diagnosis, 714
Cryptopine, 292
Crystallization, 415
Cubeba, 193
Cubeben, 193
Cubebene, 193
Cubebin, 193
Cuca, 208
Cucumber, Squirting, 203
Cucumber tree, 273
Cucurbita Pepo, 302
Cucurbitine, 302
Culver's Root, 265
Cuprea Bark, 176
Cuprum, 194
  Ammoniatum, 194
Curare, 196
Curarine, 196
Cutaneous Irritants, 49
Cyanide of Mercury, 240
  of Potassium, 67
  of Silver, 113
Cyanosis, 529
Cydonin, 197
Cydonium, 197
Cymene, 389
Cynips Gallæ tinctoriæ, 223
Cyprepedin, 197
Cyprepedium, 197
Cystitis, Acute, 529
  Chronic, 529
Cysts, 531
Damiana, 197
Dandelion, 383
Dandruff.—See Pityriasis, 642
Daphne Mezereum, 281
Daphnin, 281
Datura Stramonium, 373
  Tatula, 198
Daturine, 198, 373
Deafness, 531
Death, Signs of.—See Asphyxia, 721
Debility.—See Adynamia, Anæmia, Convalescence.
Decantation, 414
Decocta, 422
Decoction of Cetraria, 161
  of Chimaphila, 163
  of Dulcamara, 203
  of Granatum, 230
  of Hæmatoxylon, 235
  of Hydrangea, 239
  of Inula, 251
  of Prinos, 327
  of Quercus, 332
  of Quillaia, 333
  of Rumex, 344
  of Sarsaparilla, Compound, 357
  of Stillingia, 373
  of Viola Tricolor, 400
  of Viscum, 400
  of Xanthoxylum, 401
Decoloration, 415
Deer, Musk, 283
Deflagration, 412
Deliquescence, 416
Deliquescent Salts, List of, 466
Deliriants, 26
Delirium, 531
  Tremens, 531
Delphinine, 372
Delphinium Staphisagria, 372
Dementia, 532
  Paralytica, 533
Demulcents, 51
Dengue, 533
Dentition, 533
Dentifrices, 34
Deodorants, 52
Depressants, Cerebral, 26
  Hepatic, 40
  Renal, 44
  Respiratory, 30
  Uterine, 48
Desiccation, 411
Destructive Metamorphosis, 42
Dew-berry, 343
Dewees' Carminative, 119, 272
Dextrin, 348
Dextrose, 347
Diabetes Insipidus, 534
  Mellitus, 534
Diachylon Ointment, 318
  Plaster, 318
Diagnosis, Differential, 712

- Dialysis, 416
- Dialysed Iron, 217, 417
- Diaphoretics, 46
- Diarrhœa, 535
- Diastase, 273
  - Pancreatic, 300
- Dichloro-methane, 170
- Diffusate, 416
- Digestive System, Agents affecting, 34
- Digitalein, 199
- Digitalin, 199
- Digitalis, 198
- Digitonin, 199
- Digitoxin, 199
- Diluents, 46, 455
- Dioscorea, 201, 399
- Dioscoreïn, 201
- Diospyros, 64
- Dioxide of Carbon, 81, 348
- Diphtheria, 537
  - Diagnosis of, 714
- Dipsomania.—See Alcoholism, Delirium Tremens.
- Discutients, 42
- Disinfectants, 51
  - Burnett's, 52, 403
  - Condy's, 52
  - Labarraque's, 52, 172
- Dislocations, 563
- Dispensatories, 407
- Dispensing, 434
  - by Physicians, 434, 445
- Displacement, 417
- Distillation, 411
  - Dry, 411
  - Fractional, 411
- Disulphide of Iodine, 378
- Dita Bark, 202
- Ditaine, 202
- Ditamine, 202
- Diuretics, 43
  - Formulæ for, 541, 680
- Dizziness.—See Vertigo, 685
- Dobell's Nasal Wash, 462, 511
- Dock, Yellow, 344
- Dog-wood, 190
  - Jamaica, 314
- Domestic Measures, 438
- Donovan's Solution, 117
- Dorema Ammoniacum, 93
- Dosage of Medicines, 22
  - of Opium, 294, 297
- Dover's Powder, 256
  - Fluid, 256
- Drastic Purgatives, 38
- Draught, 459
  - Black, 364, 459
  - Effervescing, 459
- Drink, 459
  - Imperial, Formula, 460
- Drops, 438
  - Table of Drops to a Drachm, 438, 726
- Dropsy, 540
- Drosera, 202
- Drowning.—See Asphyxia, 721
- Drugs, Their Constituents, 408
- Drug-experimentation, 19
- Duboisia, 202
- Duboisine, 202
- Dulcamara, 203
- Dulcamarin, 203
- Duodenal Catarrh, 541
- Dutch Liquid, 169
- Dyscrasiæ.—See Cachexiæ, 504
- Dysentery, 541
- Dyspepsia, 544
- Dysphagia, 546
- Dysmenorrhœa, 543
- Dyspnœa, 546
- Dysuria, 547

- Ear, Agents affecting it, 30
- Earache, 630
- Eau Sedative, 94, 147
- Ebullition, 411
- Ecballium Elaterium, 203
- Ecbolics, 47, 48
- Ecboline, 204
- Ecchymosis, 547
- Ecgonine, 208
- Eclampsia, 650
- Ecthyma, 547
- Ectropium, 547
- Eczema, 547
- Efflorescence, 416
- Efflorescent Salts, List of, 466
- Egg, Yolk of, 400
- Eights, The Three, 670
- Elaterin, 203
- Elaterium, 203
- Elder, 352
- Elecampane, 251
- Electuaria, 431, 470
- Electuary for Piles, 470
- Elixir of Orange, 122
  - of Opium, 293
  - of Vitriol, 72
- Elixiria, 426, 459
- Elm, Slippery, 392
- Elutriation, 413
- Ely's Cream Balm, 704
- Emaciation, 549
- Embrocation, 461
- Emetics, 36
  - General or Systematic, 37
  - Local, 37
- Emetine, 256
- Emissions, 550
- Emmenagogues, 47
  - Formulæ for, 487
  - Pills, 468
- Emollients, 50
- Emphysema of Lungs, 550
- Emplastra, 433, 476
- Empyema, 550

Emulsification, 457
Emulsin, 67
Emulsion of Cod-liver Oil, 282, 459
  of Copaiba, 459
  Pancreatic, 300
Emulsions, 457
  Natural, 457
Encephaloma.—See Cancer, 506
  Diagnosis of, 713
Endarteritis.—See Atheroma, 494
Endocarditis, 551
  Diagnosis of, 713
Endometritis, 551
Enema of Tobacco, 381
Enemas, Formulæ for, 462, 552
Enemata, 461, 552
Enteralgia.—See Colic, Intes., 518
Enteric Fever.—See Typhoid, 676
Enteritis, 552
Entropium, 547
Enuresis, 552
Epididymitis, 553
Epilation.—See Tinea Circin., 673
Epilepsy, 553
  Diagnosis of, 714
Epispastics, 49
Epistaxis, 555
Epsom Salt, 271
Epulis.—See Teeth, 671
Equinia.—See Glanders, 568
Erections, 550
Ergot of Rye, 204
  of Corn.—See Ustilago, 402
Ergota, 204
Ergotine, 204
Ergotinine, 204
Ergotism, 205
Ericolin, 223, 393
Erigeron, 207
Eriodyction, 207
Errhines, 32
Eructations, 544, 562
Eruptions caused by Drugs, 555
Erysipelas, 555
Erythema, 557
Erythrophleine, 157
Erythrophlœum Guinense, 157
Erythroretin, 336
Erythroxylon, 140
Escharotics, 49
Eserine, 307
Essence of Lemon, 266
  of Nutmeg, 285
  of Peppermint, 280
  of Spearmint, 281
Ethene, 81
  Chloride, 81
  Dichloride, 81
Ether, 78
  Acetic, 79
  Chloric, 169
  Chlorinated Muriatic, 170
  Hydrobromic, 79
Ether, Hydriodic, 79
  Methylic, 81
  Petroleum, 128
Ethereal Oil, 79
  Preparations, 427
Ethics, 724
Ethyl Acetate, 79
  Alcohol, 85, 87
  Bromide, 79, 81
  Carbamate, 166
  Chloride, 81
  Hydrate, 87
  Hydride, 81
  Iodide, 79, 253
  Nitrite, 79
  Oxide, 78
Ethylate of Sodium, 369
Ethylene Bichloride, 169
Ethylidene Chloride, 170
Eucalyptene, 212
Eucalyptol, 212
Eucalyptolen, 212
Eucalyptus, 212
Eugenia caryophyllata, 156
  Pimenta, 313
Eugenin, 156
Eugenol, 157
Euonymin, 213
Euonymus, 213
Eupatorin, 213
Eupatorium, 213
  perfoliatum, 213
  purpureum, 214
Euphrasia, 214
Evaporation, 410
  Spontaneous, 411
Exanthemata, Diagnosis of, 715
Excipients, 430, 455
  for Emulsions, 458
  for Pills, 464
Excitants, Cerebral, 26
  Ciliary, 33
Excoriation.—See Intertrigo, 600
Excretion.—Agents affecting, 43
Exhaustion, 557
Exogonium purga, 258
Exophthalmos, 558
Exostosis, 558
Expectorants, 32
Explosive Compounds, 449
Expression, 417
Exsiccation, 412, 416
Extemporaneous Pharmacy, 434
  Preparations, 453
  Prescriptions, 439
Extract of Aconite, 76
  of Aloes, Watery, 90
  of Arnica-root, 115
  of Baptisia, 125
  of Belladonna, Alcoholic, 126
  of Cannabis Indica, 149
  of Cinchona, 177
  of Colocynth, 185

Extract of Colocynth, Compound, 185
  of Colchicum-root, 184
  of Conium, Alcoholic, 186
  of Convallaria, 188
  of Damiana, 198
  of Digitalis, 199
  of Duboisia, 202
  of Ergot, 205
  of Eriodyction, 207
  of Euonymus, 213
  of Gentian, 226
  of Glycyrrhiza, 228
    Pure, 228
  of Hæmatoxylon, 235
  of Hellebore, 236
  of Hyoscyamus, Alcoholic, 248
  of Iris, 257
  of Juglans, 259
  of Krameria, 262
  of Leptandra, 265
  of Malt, 273
  of Mezereum, 281
  of Nux Vomica, 288
  of Opium, 292
  of Physostigma, 308
  of Pichi, 310
  of Pinus Canad., 316
  of Podophyllum, 320
  of Polygonum, 321
  of Quassia, 331
  of Quebracho, 332
  of Rheum, 336
  of Rhus Toxicodendron, 339
  of Stramonium, 374
  of Taraxacum, 384
Extracta, 428
Extracta Fluida.—See Fluid Extracts, 423
Extractive, 429
Eye-bright, 214
Eye Diseases, 558
  Ointments.—Formulæ for, 521
  Sensibility, Agents affecting it, 29
  Water, Formulæ for, 521
Eyelids, 559

Fabiana imbricata, 310
Face, 559
Face-ache.—See Neuralgia, Tic Douloureux, 622, 672
Fainting.—See Syncope, 668
False Pains, 559
Farcy, 568
Fat.—See Obesity, 626
Fatigue.—See Exhaustion, 557
Favus.—See Tinea Favosa, 673
Febricula.—See Fever, Simple, 561
Febrifuge, 178
Feet, 559
Fehling's Solution, 194
Fel Bovis, 214
  Inspissatum, 214
  Purificatum, 214
Felon.—See Onychia, 627
Fennel, 221
Fermentation, Lactic, 348
Fern, Male, 121
Ferrier's Snuff, Formula, 510
Ferro-cyanide of Potass., 67
Ferrum, 215
  Dialyzatum, 217, 417
  Reductum, 215
Ferula galbaniflua, 222
  Narthex, 119
  Scorodosma, 119
  Sumbul, 380
Fever, 560
  Bilious Remittent, Diagnosis, 717
  Cerebro-spinal, 615
  Hay, 573
  Hectic, 580
  Intermittent, 598
  Miliary, 618
  Milk.—See Lactation, 604
  Pernicious.—See Intermittent Fever, Remittent Fever.
  Puerperal, 651
  Relapsing, 654
  Remittent, 655
    Diagnosis of, 717
  Rheumatic, 656
  Scarlet, 660
    Diagnosis of, 715
  Simple, 561
  Spotted.—See Typhus Fever, also Meningitis, Cerebro-spinal.
  Surgical, 668
  Traumatic.—See Surgical Fever, 668
  Typhoid, 676
    Diagnosis of, 716
  Typho-malarial.—See Typhoid, 676
  Typhus, 677
    Diagnosis of, 716
  Yellow, 689
    Diagnosis of, 717
Ficus (Fig), 221
Filix Mas, 121
Filtering-paper, 414
Filtration, 414
Fir, Balsam of, 384
  Scotch, 316
  Silver, 384
Firs, 315
Fish-berries, 310
Fistula, 562
Fits.—See Apoplexy, Convulsions, Epilepsy, Hysteria, Syncope.
Flatulence, 562
Flavoring Agents, 456
Flax-seed, 267
Flea-bane, 207
Fleming's Tincture of Aconite, 76
Flooding.—See Hemorrhage Postpartum, Menorrhagia and Metrorrhagia.
Fluavil, 234
Fluid Extract of Aconite, 76

Fluid Extract of Ailanthus, 85
  of Arnica-root, 115
  Aromatic, 183
  of Aurantium Amarum, 122
  of Baptisia, 125
  of Belladonna, 126
  of Berberis, 130
  of Brayera, 132
  of Buchu, 137
  of Calamus, 143
  of Calumba, 145
  of Cannabis Indica, 149
  of Capsicum, 153
  of Cascara Amarga, 157
  of Cascara Sagrada, 158
  of Castanea, 159
  of Chimaphila, 163
  of Chirata, 164
  of Cimicifuga, 175
  of Cinchona, 177
  of Cocculus, 310
  of Coffee, Green, 138
  of Colchicum-root, 184
  of Colchicum-seed, 184
  of Conium, 186
  of Convallaria, 188
  of Corn-silk, 402
  of Cornus, 190
  of Coto, 191
  of Cotton-root, 229
  of Cubeb, 193
  of Cypripedium, 197
  of Damiana, 198
  of Digitalis, 199
  of Drosera, 202
  of Dulcamara, 203
  of Ergot, 205
  of Eriodyction, 207
  of Erythroxylon, 208
  of Eucalyptus, 213
  of Eupatorium, 214
  of Frangula, 221
  of Gelsemium, 224
  of Gentian, 226
  of Geranium, 226
  of Ginger, 406
  of Glycyrrhiza, 228
  of Gossypium, 229
  of Granatum, 230
  of Grindelia, 230
  of Guarana, 233
  of Hamamelis, 235
  of Hellebore, Black, 236
  of Hydrangea, 239
  of Hydrastis, 246
  of Hyoscyamus, 248
  of Ipecacuanha, 256
  of Iris, 257
  of Jaborandi, 312
  of Krameria, 262
  of Lactucarium, 263
  of Leptandra, 265
  of Liquorice, 228
Fluid Extract of Lobelia, 269
  of Lupulin, 238
  of Manaca, 274
  of Matico, 277
  of Mezereon, 281
  of Nux Vomica, 288
  of Orange, Bitter, 122
  of Pareira, 301
  of Phytolacca, 309
  of Pichi, 310
  of Pilocarpus, 312
  of Pink-root, 371
  of Piscidia, 314
  of Plantago, 317
  of Podophyllum, 320
  of Poke-root, 309
  of Polygonum, 321
  of Prunus Virginiana, 328
  of Quassia, 331
  of Quebracho, 332
  of Rhatany, 262
  of Rheum, 336
  of Rhubarb, 336
  of Rhus Aromatica, 338
  of Rhus Glabra, 338
  of Rose, 342
  of Rubus, 344
  of Rumex, 344
  of Sabina, 346
  of Sanguinaria, 353
  of Santalum, 354
  of Sarsaparilla, 357
    Compound, 357
  of Savine, 346
  of Scilla, 359
  of Scutellaria, 362
  of Senega, 363
  of Senna, 364
  of Serpentaria, 365
  of Spigelia, 371
  of Stigmata Maydis, 402
  of Stillingia, 373
  of Stramonium, 374
  of Sumach, Smooth, 338
    Sweet, 338
  of Taraxacum, 384
  of Tonga, 391
  of Triticum, 392
  of Ustilago, 402
  of Uva-ursi, 393
  of Valerian, 394
  of Veratrum Viride, 396
  of Viburnum, 399
  of Wild Cherry, 328
  of Witch-hazel, 235
  of Xanthoxylum, 401
  of Zingiber, 406
Fluid Extracts, 423
Flushing-heats, 563
Fly-agaric, 84
Fœniculum, 221
Fœtal Development, 720
  Skull, its Diameters, 720

Fomentation, 460
Food, Horlick's, 273
  Mellin's, 273
Foods, 41
Foreign Bodies, 563
Formulæ, Hypodermic, 701
Formyl Iodide, 252
Fotus, 460
Fowler's Solution, 116
Fox-glove, 198
Fractures, 563
Franciscea uniflora, 274
Frangula, 221
Frangulin, 221
Frankincense, 385
Franklinite, 403
Fraxin, 276
Fraxinus Ornus, 276
Freckles, 563
Friar's Balsam, 129, 376
Fuchsin, 222
Fucus Vesiculosus, 222
Furuncle.—See Boils, 496
Fusel Oil, 87
Fusion, 412

Gaduin, 282
Gadus Morrhua, 282
Galactagogues, 49
Galbanum, 222
Galla, 64, 223
Galena, 317
Gallipots, 476
Gall-stones.—See Calculi, Biliary, 505
Gallus Bankiva, 400
Gamboge, 146
Gangrene, 564
  of Lungs, 610
Garcinia Hanburii, 146
  mangostana, 276
Gargarysma, 460
Gargles, Formulæ for, 460, 539, 639, 672
Garlic, 89
Gaseous Preparations, 477
Gastralgia, 564
Gastric Dilatation, 565
Gastric Fever.—See Fever, Simple,—Typhoid Fever, Gastritis
Gastric Pain, 37
  Sedatives, 37
  Tonics, 35
  Ulcer, 567
  Vomiting, Diagnosis, 717
Gastritis, Acute, 565
  Chronic, 566
Gastrodynia, 564
Gaultheria, 223
Gaultherilene, 224
Gauze of Thymol, 389
Gelatin, 249
  Capsules, 469
Gelsemine, 224
Gelsemium, 224
Generative System, Agents affecting, 47
Genitive Case-endings, 700
Gentian, 225
Gentianin, 225
Gentopicrin, 225
Geranium, 64, 226
Gin, 86, 259
Ginger, 405
Glanders, 568
Glandular Enlargements, 568
Glass, Soluble, 366
Glauber's Salt, 369
Glaucoma, 568
Gleet, 568
Glonoin, 98
Glossitis, 569
Glottis, Œdema of, 569
Gluco-pepsin, 303
Glucose, 347
Glucosides, 407
Glycerin, 227
  Preparations, 428
Glycerita, 428
Glycerite of Carbolic Acid, 60
  of Tannin, 74
  of Starch, 100
  of Yolk of egg, 400
Glyceryl, 290
  Trinitrate, 98
Glycocholate of Sodium, 214
Glycogen, 348
  Agents affecting production, 40
Glyconin, 400
  Emulsion of, 282
Glycyrrhetin, 228
Glycyrrhiza, 228
Glycyrrhizin, 228
Glycyrrhizinum Ammoniatum, 228
Gnoscopine, 292
Goa-powder, 174
Goitre, 569
Gold, 122
  Double Chloride of, 704
Golden Seal, 246
Gonorrhœa, 570
Gossypii Radicis Cortex, 229
Gossypium, 229
Goulard's Cerate, 318
  Extract, 318
Gout, 572
  Diagnosis of, 714
Granatum, 64, 230
Granular Lids.—See Conjunctivitis, Ophthalmia
Granulation, 416
Granule, 463
Grass, Ribbed, 317
Gravel-root, 214
Graves' Disease.—See Exophthalmos, 558
Gray Powder, 239
Griffith Mixture, 215
  Pills, 215

Grindelia, 231
Guarana, 140, 233
Guaranine, 140, 233
Guaiac, 232
  Lignum, 232
  Resina, 232
Guaiacol, 191
Gum Arabic, 56
Gumboil.—See Gums, 573
Gum-tree, Blue, 212
Gums, 573
Gun-cotton, 229
Gunjah, 149
Gurjun Balsam, 233
Gutta, 234
Gutta-percha, 234
Guttæ (Drops), 438
Gynocardia odorata, 162

Hair, 573
Hair-tonic, 573
Hair Washes, Formulæ, 573
Haller's Dictum, 19
Hamamelin, 234
Hamamelis, 64, 234
Hamburg Tea, 705
Hamlin's Wizard Oil, 705
Hands.—See Chapped Hands, 513
Hashish, 150
Haustus, 459
Haw, Black, 399
Hayah, 157
Hay-fever, 573
Hæmatics, 41
Hæmatoxylin, 235
Hæmatoxylon, 64, 234
Head-ache, Bilious Sick, 575
  Congestive, 575
  Nervous, 576
Heart, Fatty, 578
  Dilated, 578
  Diseases, 577
  Hypertrophied, 578
  Palpitation, 578
  Valvular Disease, 579
Heartburn.—See Pyrosis, 653
Heart's-ease, 399
Hectic Fever, 580
Hedeoma, 236
Helenin, 251
Hellebore, 236
  American, 395
  Swamp, 395
  White, 396
Helleborein, 236
Helleborin, 236
Helleborus, 236
Hematemesis, 580
  Diagnosis of, 715
Hematocele, Pelvic, 580
Hematuria, 581
Helmbold's Buchu, 705
Hemeralopia, 581
Hemicrania, 582
Hemiopia, 583
Hemiplegia, 583
Hemlock, 186
Hemlock Spruce, 315
Hemoptysis, 583
  Diagnosis of, 715
Hemorrhage, 584
  Intestinal, 585
  Post-partum, 585
Hemorrhagic Diathesis, 584
Hemorrhoids, 586
Hemostatics, 50
Hemp, 149
  American, 149
  Canadian, 107
  Indian, 149
Henbane, 247
Hepar Sulphuris, 378
Hepatalgia, 587
Hepatic Abscess, 590
  Congestion, 588
  Cirrhosis, 587
  Depressants, 40
  Diseases, 589
  Stimulants, 39
  Vomiting, Diagnosis, 717
Hepatitis, 590
Hernia, 590
Herpes, 590
  Zoster, 591
Hesperidin, 121, 266
Heuchera, 64
Hiccough, 591
Hip-joint Disease, 527
Hippocratic Oath, 724
Hive Mixture, 102, 360
  Syrup, 102
Hives.—See Urticaria, 681
Hoang Nan, 237
Hoarseness.—See Aphonia, 490
Hoffman's Anodyne, 79
Hoff's Malt Extract, 273
Holloway's Pills, 705
Homatropine, 126
Honduras Bark, 157
Honey, 278
  Clarified, 278
  of Rose, 278, 343
Honeys (Mellita), 421
Hong-Pang-Chong, 337
Hooper's Female Pills, 468
Hope's Mixture, 537
Hop-tree, 339
Hops, 238
Hordeolum.—See Eyelids, 559
Hordeum distichum, 273
Horehound, 277
Horlick's Food, 273
Hostetter's Bitters, 705
Housemaid's Knee.—See Bursitis, 504
Humulus, 238

Hunger.—See Appetite, 491
Hunyadi Water, 524
Huxham's Tincture of Bark, 177
Hydragogue Purgatives, 38
Hydrangea, 239
Hydrargyrism, 242
Hydrargyrum, 239
    Ammoniatum, 240
    cum Creta, 239
Hydrastin, 246
Hydrastine, 246
Hydrastis, 246
Hydrate of Aluminium, 92
    of Amyl, 87
    of Amylene, 165
    of Butyl-chloral, 168
    of Chloral, 165
    of Ethyl, 87
    of Magnesium, 271
    of Methyl, 87
    of Potassium, 322
    of Sodium, 368
    of Terpine, 385
Hydrated Oxide of Iron, 216
        with Magnesia, 216
Hydrated Silicate of Magnesium, 366
Hydride of Amyl, 81
    of Butyl, 81
    of Ethyl, 81
Hydriodic Ether, 79, 83
Hydrobromate of Coniïne, 186
    of Hyoscine, 165, 248
    of Quinine, 177
Hydrobromic Ether, 79, 82
Hydrocele, 592
Hydrocephalus, 592
Hydrochlorate of Apomorphine, 107
    of Cocaine, 208
    of Quinine, 177
        Carbamide, 178
    of Morphine, 293
    of Narcotine, 294
    of Oxy-ethyl-chinoline-hydride, 179
    of Pilocarpine, 312
    of Rosanilin, 222
Hydrocotarnine, 292
Hydrocotyle, 247
Hydrogen, Sulphuretted, 378
    Peroxide, 385
Hydro-naphthol, 286
Hydrophobia, 592
Hydroquinone, 179, 180, 393
Hydrothorax, 593
Hygrine, 208
Hygroscopic Bodies, 416
Hyoscine, 165, 247
Hyoscyamus, 247
Hyoscyamine, 247
Hyperidrosis, 636
Hypnone, 165
Hypnotics, 27
Hypochondriasis, 593
Hypodermic Formulæ, 701
Hypodermic Injections, 21, 702
Hypophosphite of Calcium, 305
    of Iron, 216, 305
    of Potassium, 305
    of Sodium, 305
Hypophosphites, 305
    with Iron, Syrup of, 305
Hyposulphite of Sodium, 73
Hysteria, 593
    Diagnosis of, 714

Ice, 110
Iceland Moss, 161
Ichthyocolla, 249
Ichthyol, 378
Ichthyosis, 594
Icterus.—See Jaundice, 601
Igasurine, 288
Ignatia, 250
Ignition, 412
Ileus.—See Intestinal Obstruction, 600
Ilex Paraguayensis, 140
Illicium, 250
    Anisatum, 100
Impetigo, 594
Impotence, 595
Incineration, 412
Incompatibility, 448
    Chemical, 448
    Pharmaceutical, 448, 450
    Rules for avoiding, 452
    Therapeutical, 451
Indian Tobacco, 269
Indigestion.—See Dyspepsia, 544
Indigo, Wild, 125
Inflammation, 595
Influenza, 597
Infusa, 422
Infusion of Arnica, 115
    of Brayera, 132
    of Buchu, 137
    of Cardamom, 155
    of Caraway, 156
    of Cascarilla, 158
    of Cinchona, 177
    of Cloves, 157
    of Convallaria, 188
    of Digitalis, 199
    of Gentian, Compound, 226
    of Hops, 238
    of Jequirity, 55
    of Juniper, 259
    of Linseed, 268
    of Lobelia, 269
    of Pareira, 301
    of Quassia, 331
    of Sassafras, 358
    of Senna, Compound, 364
    of Spigelia, Compound, 371
    of Tansy, 383
    of Tar, 316
    of Wild Cherry, 328

Infusion of Uva-ursi, 393
Infusions, 422
Ingluvin, 303
Inhalation of Thymol, 389
Inhalations, Formulæ for, 477
Injection Brou, 462
 of Morphine, Hypodermic, 294
Injections, 461
 Formulæ, 21, 462, 702
Injuries.—See Bruises, Burns, Ecchymosis, Fractures, Sprains, Wounds.
Inoculation, 22
Inosit, 347
Insanity, 532
Insolation. See Sunstroke, 668
Insoluble Salts, 449
Insomnia, 598
Intemperance.—See Alcoholism, Delirium Tremens.
Intermittent Fever 598
Intertrigo, 600
Intestinal Astringents, 39
Intestinal Diseases.—See Colic, Constipation, Diarrhœa, Duodenitis, Dysentery, Enteritis, Hemorrhoids, Hernia, Intestinal Obstruction, Intussusception, Typhlitis, Tabes Mesenterica, Worms.
Intestinal Obstruction, 600
 Parasites.—See Worms, 688
Intussusception, 600
Inula, 251
Inulin, 114, 251
Iodide of Ammonium, 94, 252
 of Arsenic, 116
 of Cadmium, 137
 of Ethyl, 70
 of Formyl, 252
 of Iron, 216
  Saccharated, 216
  and Manganese, 218
 of Lead, 317
 of Manganese, 274
 of Mercury, 240
  Green, 240
  Red, 240
 of Potassium, 252
 of Silver, 113
 of Sodium, 252
 of Sulphur, 378
 of Zinc, 403
Iodides, 252
Iodine, 251
Iodism, 253
Iodized Cotton, 581
 Phenol, 252
 Starch, 252
Iodol, 252
Iodoform, 252
Iodum, 251
Ipecacuanha, 256
Iridin, 257
Iris, 257
Irish Moss, 174
Irisin, 257
Iritis, 601
Iron, 215
 Dialysed, 217, 417
 Pills, 468
 and Tannic Acid, 453
Irritability, 601
Irritants, Cutaneous, 49
Ischuria.—See Urinary Disorders.
Isonandra Gutta, 234
Iso-naphthol, 286
Itch.—See Scabies, 659
Itching.—See Lichen, Prurigo, Pruritus, Pediculi, Scabies, Urticaria, etc.
Ivy, Poison, 338

Jaborandi, 311
Jaborine, 311
Jalap, 258
Jalapin, 258, 359
James' Powder, 102
Jamestown Weed, 373
Japaconitine, 76
Jasmine, Yellow, 224
Jateorrhiza Calumba, 145
Jaundice, 601
Jequirity, 55
Jervine, 396
Joint Affections, 602
Juglans, 259
Juniperin, 259
Juniper, 259
Juniperus communis, 259
 Sabina, 346
 Virginiana, 346

Kairine, 179
Kairoline, 179
Kalium, 322
Kalmia latifolia, 279
Kamala, 260
Kavahin, 261
Kava-kava, 261
Kawin, 261
Kefir, 263
Keratitis, 603
Kidneys, Diseases of.—See Albuminuria, Bright's Disease, Calculi, Diabetes, Dropsy, Hematuria, Lithæmia, Nephritis.
Kino, 64, 261
Kinoin, 261
Kino-red, 261
Kinovate of Calcium, 177
Kinovin, 177
Kombé arrow-poison, 375
Koussin, 132
Kousso, 132
Krameria, 64, 261
Kumyss, 86, 262
Kurung Oil, 321

- Labarraque's Solution, 52, 172
- Labor, 603, 719
  - Positions in, 719
  - Signs of, 719
- Lac Sulphuris, 378
- Lactate of Iron, 216
- Lactation, 604
- Lactopeptine, 303
- Lactophosphate of Calcium, 305
- Lactose, 348
- Lactuca virosa, 263
- Lactucerin, 263
- Lactucin, 263
- Lactucarium, 263
- Ladies' Slipper, 197
- La Fayette's Mixture, 189
- Lallemand's Specific, 572
- Lanolin, 263
- Lanthopine, 292
- Lapathin, 344
- Lappa, 264
- Larch, 83
  - European, 83, 385
- Lard, 78
  - Benzoinated, 78
  - Oil, 78
- Larix Europæa, 385
- Laryngismus Stridulus, 604
- Laryngitis, 605
- Laryngotomy, 606
- Latin Phrases and Terms, 691, 700
- Laudanine, 292
- Laudanosine, 292
- Laudanum, 292
- Laurel, Mountain, 279
- Laurocerasus, 67
- Lavandula, 264
- Lavender, 264
  - Water, 265
- Laville's Anti-gout Remedy, 185, 656, 705
- Laxatives, 38
  - Powder, 472
- Lead, 317
  - Colic, 519
  - Plaster, 318
  - Sugar of, 317
  - Water, 318
    - and Laudanum, 460
  - White, 317
- Leek, 89
- Legal's Disease, 624
- Lemon, 266
  - Juice, 266
  - Peel, 266
- Lentigo.—See Freckles, 563
- Leopard's Bane, 114
- Leprosy, 606
- Leptandra, 265
- Leptandrin, 265
- Lettuce, 263
- Leucocythæmia, 606
- Leucoline, 163
- Leucoma.—See Corneal Opacities, 525
- Leucorrhœa, 607
- Levigation, 413
- Levulose, 347
- Lice.—See Pediculi, 635
- Lichen, 607
- Lichenin, 161
- Licoperdon giganteum, 265
- Lignum Vitæ, 232
- Lily-of-the-Valley, 187
- Lily, Water, 290
- Lime, 143, 144, 266
  - Chlorinated, 172
  - Sulphurated, 378
  - Water, 144
- Limon, 266
- Limonis Cortex, 266
  - Succus, 266
- Linimenta, 427, 460
- Liniment, Aconite, 76
  - Ammonia, 93
  - Anodyne, 461
  - Army, 461
  - Belladonna, 126
  - Camphor, 147
  - Cantharides, 151
  - Chloroform, 169
    - Compound, 169, 461
  - Croton, 391
  - Lead Subacetate, 318
  - Lime, 144
  - Mustard, Compound, 367
  - Soap, 357
  - Stokes', 461
  - Turpentine, 384
- Liniments, Formulæ for, 461
- Linseed, 267
- Linum, 267
- Lips.—See Chapped Lips, 513
- Lip-salve, Red, 388
- Liquid-ambar orientalis, 376
- Liquids, Normal, 424
- Liquores (See Solution of), 420
- Liquorice Root, 228
  - Wild, 55
- Lithæmia, 608
- Litharge, 318
- Lithium, 268
- Lithontriptics, 45
- Liver.—See Hepatalgia, etc., 587
- Liver of Sulphur, 378
- Lixiviation, 417
- Lobelacrin, 269
- Lobelia, 269
- Lobelin, 269
- Lobeline, 269
- Lochia.—See Labor and Puerperal Disorders, 603, 651
- Lock-jaw.—See Tetanus, 671
- Locomotor Ataxia, 608
- Log-wood, 64, 234
- Lotion, 460
  - Black, of Mercury, 241
  - Yellow, of Mercury, 241

Loxopterygiūm Lorentzii, 332
Lozenges, 431, 469
Lugol's Solution, 252
Lumbago, 609
Lumbrici.—See Worms, 688
Lungs, Diseases of, 609
  Gangrene of, 610
Lupulin, 238
Lupuline, 238
Lupus, 610
Lycopodium, 270
Lyctonine, 76
Lymphangeitis, 611

Mace, 285
  Oil of, 285
Maceration, 417
Macis, 285
Macrotin, 175
Magendie's Solution, 294
Magenta, 222
Magma, 415
Magnesia, 271
  Ponderosa, 271
Magnesium, 271
Magnolia, 273
Magnolin, 273
Maize, 402
Malaria, 611
Male Fern, 121
Mallotus phillipinensis, 260
Malt, 273
  Extract, Hoff's, 273
Maltum, 273
Mammary Abscess, 481
Manaca, 274
Mandrake, 320
Manganese, 274
  Oxide, 274
Manganum, 274
Mangifera indica, 276
Mango, 276
Mango-fruit, 276
Mangosteen, 276
Mania, 612
  Puerperal, 652
Manna, 276
Mannit, 276
Manzanita, 393
Marasmus. — See Atrophy, Emaciation, Tabes Mesenterica.
Marc, 423
Marginal Shield Fern, 121
Marigold, 145
Marjoram, Wild, 300
Marrubiin, 277
Marrubium, 277
Marsh-mallow, 91
Mass of Copaiba, 189
  of Ferrum Carbonate, 215
  of Mercury, 239
Massæ, 430
Mastic, 277
Mastiche, 277
Mastichin, 277
Mastitis, 612
Mastodynia, 613
Masturbation.—See Emissions, Spermatorrhœa, 550, 664
Maté, 140
Materia Medica, 17, 55
Matico, 277
Matricaria, 278
  Chamomilla, 278
May Apple, 320
McMunn's Elixir of Opium, 293
Meadow Anemone, 328
  Saffron, 184
Measles, 613
  Diagnosis of, 715
  False.—See Roseola, 659
Measures, Approximate, 438
  Domestic, 438
  and Weights, 435, 726
Meconidine, 292
Meconoiosin, 292
Meconin, 292
Medicines, Administration of, 20
  Classification of, 23
Meerschaum, 367
Mel, 278
  Despumatum, 278
  Rosæ, 278
Melaleuca Cajuputi, 142
Melancholia, 614
  Puerperal, 652
Melia Azedarach, 123
Melissa, 278
Mellin's Food, 273
Mellita, 421
Meningitis, Cerebral, 614
  Cerebro-spinal, 615
  Spinal, 615
  Tubercular.—See Hydrocephalus, 592
Menispermin, 279, 310
Menispermum, 279
  Cocculus, 310
Menopause.—See Climacteric, 518
Menorrhagia, 616
Menstrual Disorders, 617
Menstruum, 417
Mentagra, 617
Mentha Piperita, 279
  Viridis, 280
Menthol, 280
Mercurial Ointment, 239
  Plaster, 239
Mercuric Chloride, 239
  Iodide, 240
Mercurio-vegetal, 274
Mercurous Chloride, 240
  Iodide, 240
Mercury 239
  Ammoniated, 240
  with Chalk, 239

Mesenteric Disease.—See Tabes Mesenterica, 670
Metabolism, Agents affecting, 41
Meta-dihydroxy-benzene, 334
Methane, 81
Methene Chloride, 81
Methyl Alcohol, 81
    Bromide, 81
    Chloride, 170
        Bichlorinated, 168
    Coniïne, 186
    Creasol, 191
    Ether of Protocatechuic Aldehyde, 395
    Hydrate, 87
    Salicylate, 224
    Terchloride, 168
Methylal, 166
Methylene Bichloride, 170
Methylic Alcohol, 87
    Ether, 81
Methysticin, 261
Metric Prescriptions, 437
    System of Weights, etc., 436
    Table for Converting, 727
Metritis, Acute, 617
Metrorrhagia, 617
Mezereon, 281
Mezereum, 281
Microbe-killer, 706
Migraine, 582
Miliary Fever, 618
Milk.—See Agalactia, Lactation.
Milk Fever.—See Lactation, 604
Mindererus, Spirit of, 94
Mineral Waters, 109
Mint, 279
Miscarriage.—See Abortion, 480
Mistletoe, 400
Misturæ, 421, 453
Mixture, Almond, 97
    Ammoniac, 93
    Asafetida, 119
    Bismuth, 457
    Chalk, 143
    Chloroform, 169
    Copaiba, Compound, 189
    Coxe's Hive, 102, 360
    Ferro-saline, 218
    Gentian, Alkaline, 226
        and Senna, 226
    Iron, Aromatic, 218
        and Ammon. Acetate, 217
    Iron, Compound, 215
    Iron, Laxative, 218
    Laville's, 185, 656
    Liquorice, Compound, 228
    Magnesia and Asafetida, 119, 272
    Neutral, 323
    Quinine, 455, 457
    Potassium Citrate, 323
    Rhubarb and Soda, 336
Mixtures, 421, 453
    Compounding of, 456
Mixtures, Substances suitable to, 454
Moccasin-plant, 197
Molasses, 348
Mole.—See Nævus, 619
Mollities Ossium.—See Bone Diseases, Rachitis, 497, 653
Monoxide of Carbon, 81
Monsel's Solution, 216
Moonseed, Canadian, 279
Morbilli.—See Measles, 613
Morphine, 293
    and Atropine, 299, 702
    Habit, 628
Morrhuæ Oleum, 282
Morrison's Pills, 146, 705
Moschus, 283
Mosquitoes, 667
Motor Depressants, 24
    Excitants, 24
Mouth Diseases.—See Aphthæ, Cancrum Oris, Gums, Parotitis, Ptyalism, Stomatitis, Toothache, Tongue.
Mouth Washes, Formulæ, 573
Mucilage of Acacia, 56
    of Cydonium, 197
    of Elm, 392
    of Sassafras-pith, 358
    of Tragacanth, 391
Mucilagines, 421
Mullein, 398
Mumps, 634
Muriate.—See Hydrochlorate.
    of Berberine, 130
    of Cocaine, 208
Muscæ Volitantes, 618
Muscarine, 84
Muscular Disorders.—See Atrophy, Chorea, Hydrophobia, Laryngismus, Lumbago, Myalgia, Pleurodynia, Rheumatism, Tetanus, Torticollis.
Musk, 283
Mustard, 367
    Black, 367
    Flour of, 367
    Oil of, 367
    White, 367
Myalgia, 618
Mydriasis, 127
Mydriatics, 28
Myelitis, 618
Mykose, 204
Myopia, 619
Myotics, 29
Myrcia, 284
Myrica, 64
    cerifera, 160
Myricin, 160
Myristica, 284
Myristicol, 285
Myronate of Potassium, 367
Myrosin, 367
Myroxylon toluifera, 124
    Pereiræ, 124

Myrrh, 285
Myrrhin, 286
Myrrhol, 286
Myrtle, 64
Myrtol, 503

Nævus, 619
Nails, Ingrowing, 619
Napelline, 76
Naphthaline, 179, 286
Naphthol, 286
Narceine, 292
Narcotics, 26
Narcotine, 292
Nasal Affections, 619
    Injections, Formulæ, 539
Natrium, 368
Nausea, 620
Necrosis, 620
Nectandra, 301
Nervous Affections, 620
    Exhaustion, 621
Nervousness, 621
Nervous System, Agents affecting, 24
Neuralgia, 622
    Ovarian, 631
Neutral Mixture, 323
Nicotiana Tabacum, 381
Nicotianin, 381
Nicotine, 381
Nightshade, Black, 203
    Deadly, 125
    Woody, 203
Night-mare, 625
Night Sweats.—See Hectic Fever, Perspiration, Phthisis.
Nipples, Sore, 625
    Fissured, 625
Nitrate of Ammonium, 94
    of Iron, 216
    of Lead, 317
    of Mercury, 240
    of Muscarine, 84
    of Potassium, 323
    of Silver, 112
        Fused, 112
    of Sodium, 369
Nitre, 323, 369
    Chili, 369
    Sweet Spirit of, 79
Nitrite of Amyl, 98
    of Ethyl, 79, 98
    of Potassium, 98
    of Sodium, 98
Nitro-benzene, 179
Nitro-benzol, 97
Nitro-glycerin, 98
Nitrous Ether, 79, 82
    Oxide, 81
Nodes, 625
Normal Liquids, 424
Norwood's Tincture, 396
Norway Spruce, 315
Nucin, 259
Nutgall, 64, 223
Nutmeg, 284
Nux Vomica, 287
Nyctalopia, 581
Nymphæa, 64
    Odorata, 290
Nymphomania, 625

Oak-bark, 64, 332
    Black, 333
Oak, Dyer's, 223
    Poison, 338
    White, 332
Oat, 123
Obesity, 626
Obstetrical Memoranda, 719
Odontalgia, 626
Œsophagus, Affections of, 627
Official Operations, 410
    Preparations, 419
Officinal.—See Preface.
Oil of Allspice, 313
    of Almond, Bitter, 97
        Expressed, 97
    of Amber, 377, 385
    of Anise, 100
    of Anthemis, 101
    of Aurantium Cortex, 122
        Flores, 122
    of Bay, 284
    Benné, 366
    of Bergamot, 131
    of Cade, 259
    of Cadinum, 259
    of Cajuput, 142
    of Caraway, 156
    of Carum, 156
    Carron, 144, 268
    Castor, 340
    of Caryophyllus, 157
    of Cedar, 354
    Chaulmoogra, 162
    of Chenopodium, 163
    of Cinnamon, 183
    of Cloves, 157
    Cod-liver, 282
    of Copaiba, 189
    of Coriander, 190
    of Cotton-seed, 229, 290
    Croton, 390
    of Cubeb, 193
    of Erigeron, 207
    Ethereal, 79
    of Eucalyptus, 212
    of Fennel, 221
    of Gaultheria, 223
    of Gossypium-seed, 229, 290
    of Hedeoma, 236
    of Hemlock, 316
    of Juniper, 259

Oil, Kurung, 321
    Lard, 78
    of Lavender, 265
        Flowers, 265
    of Lemon, 266
    of Linseed, 267
    of Linum, 267
    of Mace, 285
    of Mentha Piperita, 280
    of Mentha Viride, 281
    of Mirbane, 97
    of Morrhua, 282
    of Mustard, Volatile, 367
    of Myrcia, 284
    of Myristica, 285
    of Neroli, 122
    of Nutmeg, 285
    Olive, 290
    of Orange-flowers, 122
    of Orange-peel, 122
    of Origanum, 300
    of Pennyroyal, 236
    of Pepper-mint, 280
    Phosphorated, 304
    of Pimenta, 313
    of Pinus Sylvestris, 316
    of Pix Liquida, 315
    of Pongamia, 321
    of Ricinus, 340
    of Rose, 342
    of Rosemary, 343
    of Rue, 345
    of Ruta, 345
    of Sabina, 346
    Salad, 290
    of Sandalwood, 354
    of Santal, 354
    of Sassafras, 358
    of Scotch Fir, 316
    of Sesamum, 366
    of Sinapis, Volatile, 367
    of Spearmint, 281
    of Spruce, 316
    Sweet, 290
    of Succinum, 377, 385
    of Tabacum, 381
    of Tanacetum, 383
    of Tansy, 383
    of Tar, 315
    of Terebinthina, 384
    of Theobroma, 387
    of Thuja, 385, 388
    of Thyme, 389
    of Tiglium, 390
    of Turpentine, 384
    of Valerian, 394
    of Wintergreen, 223
    Wood, 233
Oils, Expressed, 417
    Fixed, 417
Ointment, 160
    Basilicon, 334
    Belladonna, 126
Ointment, Boracic, 59
    Calamine, 405
    Carbolic Acid, 60
    Chrysarobin, 174
    Citrine, 240
    Diachylon, 318
    Gallic Acid, 63
    Gall, 223
    Hamamelis, 235
    Iodine, 252
    Iodoform, 252
    Lead Carbonate, 318
        Iodide, 318
    Mercurial, 239
    of Mercury, Ammoniated, 240
            Nitrate, 240
                Red, 241
            Oxide, Red, 240
                Yellow, 240
    Mezereum, 281
    Nutgall, 223
    Petroleum, 304
    of Pix Liquida, 316
    of Potassium Iodide, 252
    of Rose-water, 342
    of Staphisagria, 372
    Stramonium, 374
    Sulphur, 378
        Alkaline, 378
    of Tannic Acid, 74
    Tar, 316
    Thymol, 389
    Veratrine, 396
    White Precipitate, 240
    Witch-hazel, 235
    of Zinc Oxide, 403
Ointments, 432, 475
    Compounding, 475
    Formulæ for, 476
Olea Europæa, 290
Oleaginous Preparations, 427
Oleata, 71, 428
Oleate of Aconitine, 71, 76
    of Aluminium, 71
    of Arsenic, 71
    of Atropine, 71
    of Bismuth, 71
    of Cocaine, 208
    of Copper, 71
    of Iron, 71
    of Lead, 71, 318
    of Mercury, 71, 240
    of Morphine, 71, 294
            and Mercury, 71
    of Quinine, 71
    of Silver, 71
    of Strychnine, 71
    of Veratrine, 71, 396
    of Zinc, 71
Oleates, 71, 428
Olein, 290
Oleoresina, 427
Oleoresin of Aspidium, 121

Oleoresin of Capsicum, 153
  of Cubeb, 193
  of Lupulin, 238
  of Pepper, 314
  of Zingiber, 406
Oleoresins, 427
Onion, 89
Onychia, 627
Operations, Official, 410
Ophelia Chirata, 164
Ophthalmia, 627
Opisthotonos.—See Tetanus, 671
Opium, 291
  Denarcotized, 292
  Habit, 628
Opodeldoc, 357
Orange, 121, 266
  Blossom, 705
Orchitis, 630
Ordeal Bark, 157
Origanum, 300
Otalgia, 630
Otitis, 630
Otorrhœa, 631
Ovarian Neuralgia, 631
  Tumors.—See Cysts, 531
Ovaritis, 631
Ovis Aries, 366
Oxalate of Cerium, 161
  of Iron, 216
Oxaluria, 632
Ox-gall, 214
Oxide of Antimony, 102
  of Calcium, 143
  of Ethyl, 78
  of Iron, Hydrated, 216
    with Magnesia, 216
  of Lead, 318
  of Magnesium, 271
  of Manganese, Black, 274
  of Mercury, Red, 240
  of Mercury, Yellow, 240
  of Propyl, 282
  of Silver, 113
  of Zinc, 403
Oxidizers, 450
Oxy-benzene, 60
Oxymel, 279, 421
Oxytocics, 48
Oyster-shell, 143
Ozæna, 632

Pagliari's Styptic, 585
Pain, 632
  Chest, 513
  Gastric, 37
Pains, False, 559
Paints, 477
Palmitate of Cetyl, 161
Palmitin, 290
Pancoast's Styptic, 585
Pancreas, Agents affecting, 40
Pancreatin, 300
Pancreopepsin, 303
Pannus.—See Corneal Opacities, 525
Pansy, 399
Papain, 300
Papaiva, 300
Papaver Somniferum, 291
Papaverine, 292
Papaw Milk, 301
Paper of Cantharides, 151
  of Mustard, 367
  of Potassium Nitrate, 323
Papers (Chartæ), 434
Papine, 293
Parachinanisols, 179
Paraconiïne, 186
Paracoto Bark, 191
Paracotoin, 191
Paraldehyde, 166, 301
Paralysis, 633, 665
Paramenispermin, 310
Paramorphine, 292
Paraphimosis.—See Phimosis, 639
Paraplegia.—See Paralysis, 633
Parasiticides, 52
Paregoric, 293
Pareira, 301
Parigenin, 357
Parillin, 357
Paris Green, 117, 709
Paronychia, 627
Parotitis, 634
Parsley, 106
Parrish's Chemical Food, 305
Participles, 700
Parvule, 463
Paste, Black, 571
Pastilles, 431, 469
Pasque-flower, 328
Patent Medicines, 704
Paullinia curare, 196
Paullinia sorbilis, 233
Pearson's Solution, 116
Pectin, 332
Pediculi, 635
Pelletierine, 230
Pellitory, 330
  Persian, 330
Pelosine, 301
Pelvic Diameters, 720
Pemphigus, 635
Pencils, 474
Penis.—See Chancre, Chancroid, Chordee, Gleet, Gonorrhœa, Phimosis, Urethra.
Pennyroyal, 236
Pennywort, 247
Pepo, 302
Pepper, Black, 313
  Cayenne, 153
  Water, 321
Peppermint, 279
Pepsin, 302
  Liquid, 303

Pepsin, Saccharated, 303
Pepsinum, 302
Peptogenic Milk Powder, 303
Perchloride of Iron, 215
Percolation, 417
Pericarditis, 635
  Diagnosis of, 713
Periostitis, 636
Peritonitis, 636
  Puerperal, 652
Permanganate of Potassium, 274
Pernicious Fever.—See Intermittent Fever, Remittent Fever.
Peroxide of Hydrogen, 385
Perry Davis's Pain-Killer, 705
Persimmon, 64
Perspiration, 636
Pertussis, 637
Peruvian Bark, 176
Petrolatum, 304
Petroleum Ether, 128
  Ointment, 304
Petroselinum sativum, 106
Peumus Boldo, 132
Phæoretin, 336
Phagedena. — See Chancre, Chancroid, Gangrene, Ulcers.
Pharmaceutical Incompatibility, 448, 450
  Rules, 447
Pharmaceutists.—Their objectionable practices, 444
Pharmacology, 17
Pharmacopœias, List of, 407
Pharmacy, 17, 407
  Extemporaneous, 434
  Official, 410
  Rules for neophytes, 447, 452
Pharyngitis, 638
Phaseo-mannit, 347
Phenacetine, 180
Phenol, 60, 179
  Iodized, 252
  Salicyl, 350
  Sodique, 60
Pheno-resorcin, 180
Phenyl acetamide, 57
Phenylic Alcohol, 60, 179
Phimosis, 639
Phlebitis, 639
Phlegmasia Alba Dolens, 639
Phlegmon, 640
Phlorol, 191
Phosphate of Ammonium, 94
  of Calcium, Precipitated, 305
  of Iron, 216
  of Iron and Manganese, 218
  of Sodium, 305
Phosphates, 304
  Syrup of the, 305
Phosphide of Zinc, 305
Phosphites, 304
Phosphorus, 304
Photophobia, 640
Phthisis, 640
  Diagnosis of, 715
Physeter macrocephalus, 161
Physiological Antagonists, 451
Physostigma, 307
Physostigmine, 307
Phytolacca, 309
Pichi, 310
Picræna excelsa, 330
Picrates, 72
Picroglycion, 203
Picropodophyllin, 320
Picrotoxin, 310
Pierce's Favorite Prescription, 705
  Golden Discovery, 706
Pigmenta, 477
Piles, 586
Pill of Aloes, 90
  of Aloes and Asafetida, 90, 119
  of Aloes and Iron, 90
  of Aloes and Mastic, 90
  of Aloes and Myrrh, 90
  of Antimony, Compound, 102
  of Asafetida, 119
  Blue, 239
  Compound Cathartic, 185
  of Galbanum Comp., 119, 223
  of Iodide of Iron, 216
  of Iron, Compound, 215
  Lady Webster's, 90
  of Mercury, 239
  of Opium, 292
  of Phosphorus, 304
  of Rhubarb, 336
  of Rhubarb, Compound, 336
  Tanjore, 667
Pill-masses, 430, 463
Pills, 430, 462
  Coated, 466
  Compressed, 467, 469
  Excipients for, 463
  Formulæ for, 468
  Process of making, 463
  Official, 430
  Substances suitable for, 465
Pilocarpine, 311
Pilocarpus, 311
Pilulæ, 430, 462
Pimenta, 313
Pimpinella Anisum, 100
Pimples.—See Acne, 482
Pine, Prince's, 163
  Yellow, 384
Pines, 315
Pinipicrin, 388
Pinites Succinifer, 377, 385
Pink, Carolina, 371
Pink-root, 371
Pinus, 315
  Australis, 384, 385
  Palustris, 315
  Sylvestris, 316
  Tæda, 385

- Piper, 313
  - angustifolium, 277
  - methysticum, 261
- Piperine, 314
- Pipsissewa, 163
- Piscidia, 314
- Piscidin, 314
- Pissenlit, 383
- Pistaceæ Terebinthus, 384
- Pistacia Lentiscus, 277
- Pitch, 315
  - Burgundy, 315
  - Canada, 315
  - Hemlock, 315
- Pityriasis, 642
- Pix, 315
- Pix Liquida, 315
- Planat's Tincture, 310
- Plantago, 317
- Plantain, 317
- Plaster Adhesive, 334
  - Ammoniac, 93
    - with Mercury, 93
  - Arnica, 115
  - Asafetida, 119
  - Belladonna, 126
  - Capsicum, 153
  - Carbolic Acid, 60
  - Diachylon, 318
  - Galbanum, 223
  - Ichthyocolla, 249
  - Iron, 216
  - Lead, 318
  - Mercurial, 239
  - Opium, 293
  - Pitch, Burgundy, 316
  - Pitch with Cantharides, 151, 316
  - Pitch, Canada, 316
  - Resin, 334
  - Soap, 357
  - Strengthening, 216
  - Warming, 316
- Plasters, 433, 476
  - Formulæ for, 476
  - Preparation of, 433
- Plethora, 643
  - Abdominal, 480
- Pleurisy, 643
  - Diagnosis of, 715
- Pleurisy root, 120
- Pleuritis, 643
- Pleurodynia, 644
- Pleuro-pneumonia, 644
- Plum, 327
- Plumbum, 317
- Plummer's Pills, 102
- Pneumonia, 644
  - Diagnosis of, 715
- Podophyllin, 320
- Podophyllitoxin, 320
- Podophyllum, 320
- Poison Ivy, 338
  - Oak, 338
- Poison Sumach, 338
- Poisoning by Acids, 66
  - Acid, Acetic, 708
    - Arsenious, 118, 708
    - Carbolic, 61, 708
    - Chromic, 63
    - Gallic, 64
    - Hydrocyanic, 68, 708
    - Mineral, 66, 708
    - Oxalic, 708
    - Sulphuric, 708
    - Sulphurous, 73
    - Tannic, 74
  - Aconite, 76, 708
  - Agaricus, 84
  - Alcohol, 88, 708
  - Alkalies, 370, 708
  - Alum, 708
  - Ammonia, 95, 708
  - Antimony, 103, 708
  - Arsenic, 118, 708
  - Atropine, 127, 709
  - Barium, 709
  - Bees, 709
  - Belladonna, 127, 709
  - Bromides, 134
  - Camphor, 148, 709
  - Cannabis Indica, 150, 709
  - Cantharis, 152, 709
  - Chloral, 167, 709
  - Chlorine, 172, 709
  - Chloroform, 81, 170, 709
  - Cinchona, 181
  - Cocaine, 210
  - Cocculus Indicus, 311, 710
  - Colchicum, 184, 709
  - Conium, 186, 709
  - Copper, 195, 709
  - Creasote, 709
  - Curare, 196
  - Cyanide of Pot., 68
  - Digitalis, 200, 709
  - Duboisine, 202
  - Ergot, 206
  - Ether, 81
  - Fish, 709
  - Gamboge, 709
  - Gas, Carbonic Acid, 709
    - Sulphuretted Hydrogen, 709
  - Gelsemium, 225, 709
  - Glass, 709
  - Gold Salts, 123, 709
  - Hyoscyamus, 249, 709
  - Insects, 709
  - Iodine, 253, 709
  - Ipecacuanha, 256
  - Iron, 709
  - Lead, 319, 709
  - Lime, 144, 710
  - Lobelia, 270
  - Mercury, 244, 710
  - Mezereum, 710
  - Muscarine, 84

Poisoning, Morphine, 297, 710
  Mushrooms, 710
  Nitrites, 99
  Nux Vomica, 289, 711
  Oak or Ivy, 339
  Opium, 297, 710
  Phosphorus, 306, 710
  Physostigma, 308, 710
  Picrotoxin, 311, 710
  Pilocarpine, 312
  Potassa, 324
  Potassium Salts, 324, 710
  Pulsatilla, 329
  Quinine, 181, 710
  Reptiles, 400, 710
  Resorcin, 334
  Rhus, 339, 711
  Sanguinaria, 353
  Silver Salts, 113, 711
  Snakes, 400
  Sodium, 370
  Stramonium, 374, 711
  Strychnine, 289, 711
  Sulphites, 73
  Sulphur, 378
  Sulphuretted Hydrogen, 379
  Sumach, 339
  Tin, 711
  Tobacco, 382, 711
  Turpentine, 386
  Vegetable Poisons, 711
  Veratrum Viride, 397, 711
  Zinc Salts, 404, 711
Poisoning, 52, 707
  Antidotes and Antagonists, 53
  Indications for Treatment, 53
  General Principles, 707
Poisonous Compounds, 450
Poisons, Energetic, 707
Poke-berry, 309
Poke, Indian, 395
Poke-root, 309, 395
Polygala Senega, 363
Polygonum Hydropiperoides, 321
Polyporus fomentarius, 83
Polypus, 645
Polyuria.—See Diabetes Insipidus, 534
Pomade de Baréges, 643
Pomegranate, 64, 230
Pond's Extract, 235
Pond Lily, 64
Pongamia, 321
Poppy, White, 291
Porphyrization, 413
Porphyroxine, 292, 353
Porrigo Capitis.—Tinea Tonsurans, 673
Porter, 86
Port Wine, 86
Potassa, 322
  Alum, 91
  cum Calce, 322
  Sulphurata, 378
Potassio Cupric-Tartrate, 194
Potassium, 322
Potato, 203
Potentilla Sarmentosa, 636
Potus, 459
Poultices, 477, 646
  List of Br. official, 477
Powder of Aloes and Canella, 90
  Antimonial, 102
  Aromatic, 183
  Chalk, Compound, 143
  Dover's, 256
  Effervescing, Comp., 323
  Gray, 239
  Ipecac and Opium, 256, 293
  Jalap, Compound, 258
  James', 102
  Kino, Compound, 261
  Liquorice, Compound, 228, 364
  Morphine, Compound, 293
  Opium, 292
  Rhubarb, Compound, 336
  Seidlitz, 323
  Tullo's, 293
Powders, 431, 470
  Formulæ for, 472
  Substances suitable to, 471
Precipitant Solutions, Table of, 449
Precipitate, White, 240
Precipitation, 415
Pregnancy, Disorders of, 646
  Signs of, 719
  Vomiting of, 686
Premna tatiensis, 391
Preparations, Acetous, 428
  Alcoholic, 423
  Aqueous, 419
  Ethereal, 427
  Extemporaneous, 453
  Gaseous, 477
  Glycerin, 428
  Liquid, 453
  Official, 419
  Oleaginous, 427
  Solid, 428, 462
Prepositions, 700
Prescriptions, 439
  Analysis of, 439
  Blanks for, 443
  Filling of, 445
  Metric, 437
  Renewals, 444
  Tonic, 484, 488, 622
Prescription Writing, 442
    Latin Words used in, 691
Prickly Heat.—See Lichen, 607
Prince's Pine, 163
Prinos, 327
Proctitis.—See Rectum, 654
Prolapsus Ani, 647
  Uteri, 647
Pronunciation, 699
Propyl Oxide, 282
Propylamine, 115

Prosopalgia.—See Neuralgia, Odontalgia, Tic Douloureux.
Prostate, Hypertrophied, 647
Prostatitis, 647
Prostatorrhœa, 647
Protectives, 51
Protiodide of Mercury, 240
Protopine, 292
Prune, 327
Prunum, 327
Prunus domestica, 327
    Laurocerasus, 67
    serotina, 327
    Virginiana, 327
Prurigo, 648
Pruritus, 648
Pseudaconitine, 76
Pseudo-jervine, 396
Pseudo-morphine, 292
Pseudotropine, 247
Psoriasis, 649
Ptelea trifoliata, 339
Pterocarpus marsupium, 261
    santalinus, 354
Pterygium, 650
Ptosis, 650
Ptyalism, 650
Puccine, 353
Puerperal Convulsions, 650
    Disorders, 651
    Fever, 651
    Mania, 652
    Melancholia, 652
    Peritonitis, 652
Puff-ball, 265
Pulmonary Sedatives, 31
Pulsatilla, 328
Pulse, 652
Pulveres, 431, 470
Pulverization, 413
Pumpkin-seed, 302
Punica Granatum, 230
Purgatives, 38
Purging Agaric, 83
    Cassia, 159
Purpura, 652
Pustule, Malignant, 653
Pustules.—See Ecthyma, Eruptions, Impetigo, Pustule Malignant
Pustulants, 49
Pyæmia, 653
Pyrethrine, 330
Pyrethrum, 330
    Roseum, 330
Pyridine, 179, 381
Pyrocatechin, 179, 180
Pyrogallol, 63, 179
Pyrol, 252
Pyrophosphate of Iron, 216
    of Sodium, 305
Pyrosis, 653
Pyroxylin, 229

Quassia, 330
    Surinam, 330
Quassin, 330
Quebrachine, 331
Quebracho, 331
Queen's Delight, 373
    Root, 373
Quercin, 332
Quercitrin, 333
Quercus Alba, 64, 332
    Lusitanica, 223, 333
    Tinctoria, 333
Quicksilver, 239
Quillaia, 333
Quince-seed, 197
Quinetum, 178
Quinicine, 179
Quinidine, 177
Quinine, 177
    Mixture, 457
Quinoidin, 178
Quinquinine, 178
Quinsy.—See Tonsillitis, 674

Rabies.—See Hydrophobia, 592
Rachitis, 653
Radam's Microbe-killer, 706
Radway's Ready Relief, 706
    Resolvent, 706
Raspail's Eau Sedative, 94, 147
Raspberry, 344
Recamier Balm, etc., 704
Rectum, Absorption by, 20
    Diseases of, 654
    Ulceration of, 654
Red Gum.—See Strophulus, 668
References and Bibliography, 479
Refrigerants, 35
Relapsing Fever, 654
Remittent Fever, 655
    Diagnosis of, 717
Renal Depressants, 44
Renewals of Prescriptions, 444
Repercolation, 418
Resin, 334, 385
    Cerate, 334
    of Copaiba, 189
    of Jalap, 258
    Plaster, 334
    of Podophyllum, 320
    of Scammony, 359
Resina, 334, 385
Resinæ, 430
Resolvents, 42
Resorcin, 61, 179, 334
Respiration.—See Bronchitis, Croup, Dyspnœa, Emphysema, Pneumonia, etc.
Respiration, Agents affecting, 30
    Artificial, 721
Respiratory Depressants, 30
    Stimulants, 30
Restoratives, 41

Retina, Affections of, 655
Rhamnoxanthin, 221
Rhamnus Frangula, 221
    Purshiana, 158
Rhaphidophora vitiensis, 391
Rhatanine, 262
Rhatany, 64, 261
Rheum, 336
Rheumatic Arthritis, 655
Rheumatism, Acute, 656
    Chronic, 657
    Diagnosis of, 714
    Gonorrhœal, 659
    Muscular, 659
Rhinacanthin, 337
Rhinacanthus, 337
Rhinitis.—See Catarrh, Acute Nasal, also Nasal Affections
Rhœadine, 292
Rhubarb, 336
Rhus Aromatica, 337
    diversiloba, 339
    glabra, 338
    pumila, 339
    radicans, 338
    Toxicodendron, 338
    venenata, 339
Ricinus communis, 340
Rickets.—See Rachitis, 653
Rigors.—See under Fever, 560
Ring-worm, 673
Roasting, 412
Rochelle Salt, 323
Rosa centifolia, 342
    Damascena, 342
    Gallica, 64, 342
Rosanilin, 222
Rose, 64, 342
    Attar of, 342
    Cabbage, 342
    Pale, 342
    Red, 64, 342
Roséine, 222
Rosemary, 64, 343
Roseola, 659
Rosin, 334
Rosmarinus, 343
Rottlera, 260
    tinctoria, 260
Rottlerin, 260
Rubefacients, 49
Rubeola.—See Measles, 613
Rubijervine, 396
Rubini's Tincture, 147
Rubus, 64, 343
    Canadensis, 343
    Idæus, 344
    occidentalis, 344
    trivialis, 343
    strigosus, 344
    villosus, 343
Rue, 345
Rules for Incompatibility, 452
Rules for Pharmaceutists, 447
Rum, 86
    Bay, 284
Rumex, 344
Rumicin, 344
Rupia.—See Pemphigus, 635
Ruta, 345
Russian Spirit, 658
Rye, 204

Sabadilla, 396
Sabina, 346
Saccharine, 347
Saccharum, 347
    Lactis, 348
Sacred Bark, 58
Safflower, 192
Saffron, 192
    American, 182
    Meadow, 184
Saffron-tea, 192
Sage, 351
Sage's Catarrh Remedy, 706
Salicin, 349
Salicylate of Cinchonidine, 178
    of Cocaine, 208
    of Lithium, 268, 349
    of Methyl, 224
    of Phenol, 350
    of Physostigmine, 308, 349
    of Sodium, 349
Saligenin, 349
Saline Mineral Waters, 109
    Purgatives, 38
Saliva, Agents affecting, 35
Salivation, 35, 242, 650, 710
Salix, 349
Salol, 350
Salt, common, 369
    Epsom, 271
    Glauber's, 369
    Rochelle, 323
Salt-petre, 323
    Chili, 369
Salt-rheum.—See Eczema, 547
Salts, Deliquescent, List, 466
    Efflorescent, List of, 466
Salve, Red Lip, 388
Salvia, 351
Salviol, 352
Sambucus, 352
Sandal-wood Oil, 354
    White, 354
    Yellow, 354
Sanford's Catarrh Cure, 706
Sanguinaria, 352
Sanguinarine, 352
Sanitas, 385
Santalum Album, 354
    citrinum, 354
    Rubrum, 354
Santonica, 355

Santonin, 355
Santoninate of Sodium, 355
Sapo, 356
  Animalis, 356
  Medicatus, 356
  Mollis, 356
  Viridis, 356
Sapogenin, 363
Saponification, 356
Saponin, 160, 333
Sarcinæ, 659
Sarcocele.—See under Cancer, Testicles.
Sarothamnus Scoparius, 360
Sarsaparilla, 357
Sassafras, 358
  Medulla, 358
  Swamp, 273
Sassy Bark, 157
Saunders, Red, 354
Savine, 346
Sayre's Method for Chloroform, 171
Scabies, 659
Scald-head.—See Eczema, Tinea.
Scalds, 504
Scammonium, 359
Scammony, 359
Scarlet Fever, 660
  Diagnosis of, 715
Scheele's Acid, 67
  Green, 117
Sciatica, 661
Scilla, 359
Scillin, 359
Scillipicrin, 359
Scillitin, 359
Scillitoxin, 359
Scirrhus.—See Cancer, 506
  Diagnosis of, 713
Sclererythrin, 204
Scleroderma, 662
Scleromucin, 204
Scleroxanthin, 204
Scoparin, 360
Scoparius, 360
Scorbutus.—See Scurvy, 663
Screaming.—See Nightmare, 625
Scrofulosis, 662
Scudamore's Mixture, 572
Scurvy, 663
Scutellaria, 362, 399
Scutellarin, 363
Sea-sickness, 663
Seborrhœa, 663
Sea-wrack, 222
Secale cereale, 204
Secaline, 402
Sedatives, 24, 37
  Cardiac, 33
  Gastric, 37
  Pulmonary, 31
  Urinary, 45
  Uterine, 468
  Vascular, 34
Sedatives, Vesical, 45
Seidlitz Powder, 323
Senega, 363
Senegin, 363
Senna, 364
Sennacrol, 364
Senapicrin, 364
Separation, 415
Septicæmia, 653
Serpentaria, 365
Serpent-bites.—See Poisoning by Reptiles also Stings.
Sesamum, Oil of, 366
Sevum, 366
Shampoo Mixtures, 642
Sheep, 366
Sherry Wine, 86
Shingles.—See Herpes Zoster, 591
Sialogogues, 35
Sickness at Stomach.—See Nausea, Sea-sickness, Vomiting.
Siddhi, 150
Silicate of Magnesium, 366
  Hydrated, 367
  of Potassium, 323, 366
  of Sodium, 366
Silicious Mineral Waters, 109
Silver, 112
Sinalbin, 367
Sinapine, 367
Sinapis, 367
  Alba, 367
  Nigra, 367
Singultus.—See Hiccough, 591
Sinigrin, 367
Sinistrin, 359
Skin, Agents affecting, 49
  as an Absorbent, 21
Skin Diseases.—See Acne, Boils, Burns, Carbuncles, Chapped Hands and Lips, Chilblains, Condylomata, Ecchymosis, Ecthyma, Eczema, Elephantiasis, Eruptions, Erysipelas, Erythema, Freckles, Herpes, Herpes Zoster, Ichthyosis, Impetigo, Intertrigo, Lichen, Lupus, Mentagra, Nævus, Onychia, Pemphigus, Phlegmon, Pityriasis, Prurigo, Pruritus, Psoriasis, Roseola, Scabies, Scleroderma, Seborrhœa, Strophulus, Syphilis, Tinea, Ulcer, Urticaria, Wart, Wen.
Skull-cap, 362
Sleep, Abnormal.—See Delirium, Insomnia, Nightmare, Somnambulism.
Slippery Elm Bark, 392
Small-pox, 684
  Diagnosis of, 715
Smart-weed, 321
Smell, Agents affecting, 30
Smilacin, 357
Smilax, 357
Snake-root, Black, 174
  Virginia, 365

- Sneezing, 664
  - Agents producing, 32
  - See also Catarrh, Hay Fever, Influenza.
- Soaloin, 90
- Soap, 356
  - Bark, 333
  - Curd, 356
  - Green, 356
  - Insoluble, 356
  - of Lead Monoxide, 356
  - of Lime, 356
  - Soft, 356
- Soda, Caustic, 368
  - Chlorata, 172
  - Chlorinated, 172
- Soda-water, 108, 111
- Sodium, 368
- Solanine, 203
- Solanum Dulcamara, 203
- Solid Preparations, 428, 462
- Soluble Substances, 454
- Solution, 413
  - Aids to, 454
  - Circulatory, 414
  - of Aluminium Benzoate, 93
  - of Ammonium Acetate, 94
  - of Arsenious Acid, 116
  - of Arsenic and Mercuric Iodide, 116
  - of Arsenite of Bromine, 117
  - of Arsenite of Potassium, 116
  - of Carbonic Acid, 108
  - Clemen's, 117
  - Donovan's, 117
  - Fehling's, 194
  - Fowler's, 116
  - of Gutta-percha, 234
  - of Iodine, Compound, 252
  - of Iron Acetate, 215
  - of Iron Citrate, 215
  - of Iron Chloride, 215
  - of Iron Nitrate, 216
  - of Iron and Quinine Citrate, 217
  - of Iron Subsulphate, 216
  - of Iron Tersulphate, 217
  - of Lead Subacetate, 318
  - of Lead Subacet., Dilute, 318
  - of Lime, 144
  - of Lime, Chlorinated, 172
  - of Lime, Saccharated, 144
  - Labarraque's, 172
  - Lugol's, 252
  - Magendie's, 294
  - of Magnesium Citrate, 272
  - of Mercuric Nitrate, 240
  - of Morphine Sulphate, 294
  - of Opium, Compound, 293
  - Pancreatic, 300
  - Pearson's, 116
  - of Pepsin, 303
  - of Potassa, 322
  - of Potassium Arsenite, 116
  - of Potassium Citrate, 323
- Solution of Potassium Silicate, 366
  - of Soda, 368
  - of Soda Chlorinated, 143
  - of Sodium Arseniate, 116
  - of Sodium Silicate, 366
  - of Thymol, 389
  - of Zinc Chloride, 403
- Solutions (Liquores), 420
  - Hypodermic, 702
  - Precipitant, Table of, 449
  - Stock, 447
- Solvents, 414
- Somnambulism, 664
- Sores, 678
- Sorghum, 347
- Sorrel, 344
- Sozodont, 707
- Spanish Flies, 151
- Sparteine, 360
- Spasmodic Affections, 664
- Spearmint, 281
- Specific Gravity and Volume, 439
  - Table of, 725
- Spermaceti, 161
- Spermatorrhœa, 664
- Spigelia, 371
- Spina Bifida, 665
- Spinal Concussion, 665
  - Congestion, 665
  - Inflammation.—See Meningitis, Myelitis
  - Irritation, 665
  - Paralysis, 665
  - Softening, 665
- Spirit of Ammonia, 93
  - of Ammonia, Aromatic, 93
  - of Ammonia, Fetid, 119
  - of Anise, 101
  - of Camphor, 147
  - of Chloroform, 169
  - of Cinnamon, 183
  - of Ether, 79
  - of Ether, Compound, 79
  - of Nitrous Ether, 79
  - of Gaultheria, 224
  - Grain, 85, 87
  - of Hedeoma, 236
  - of Juniper, 259
  - of Juniper, Compound, 259
  - of Lavender, 265
  - of Lemon, 266
  - of Mentha Piperita, 280
  - of Mentha Viride, 281
  - of Mindererus, 94
  - of Myrcia, 284
  - of Myristica, 285
  - of Nutmeg, 285
  - of Orange, 122
  - of Pennyroyal, 236
  - of Peppermint, 280
  - Potato, 87
  - Proof, 86
  - Rectified, 86

Spirit, Russian, 658
    of Spearmint, 281
    of Turpentine, 384
    Wood, 87
Spirits (Spiritus), 426
Spleen, Affections of, 666
Spongia Usta, 662
Spotted Fever.—See Typhus Fever, Meningitis Cerebro-spinal
Sprains, 666
Spruces, 315
Spunk, 83
Squamæ.—See Ichthyosis, Pityriasis, Psoriasis
Squaw-root, 160
Squibb's Mixture, 293, 515
Squill, 359
St. Ignatius' Bean, 250
St. Jacob's Oil, 76, 706
St. Mary's Thistle, 156
Stains, 666
Stammering, 666
Staphisagria, 372
Star Anise, 100, 250
Starch, 100, 348
    Iodized, 100, 252
Statice, 64
Stavesacre, 372
Sterility, 666
Sternutatories, 32
Stigmata Maydis, 402
Stillingia, 373
Stimulants, 23
    Cardiac, 33
    Hepatic, 39
    Local, 25
    Pancreatic, 40
    Respiratory, 30
    Vascular, 34
Stings, 667
Stock Solutions, 447
Stomach Diseases.—See Dyspepsia, Gastralgia, Gastric Ulcer, Gastritis, etc.
Stomachics, 35
Stomatitis, 667
Stone.—See Calculi, 505
Storax, 376
Strabismus, 668
Straining, 414
Stramonium, 373
Strangury.—See Cystitis, Dysuria
Stricture.—See Rectum, Urethral Stricture
    of Urethra, 679
Strophanthin, 375
Strophanthus, 375
Strophulus, 668
Struma.—See Scrofulosis, 662
Strychnine, 237, 250, 288
Strychnos Ignatii, 250
    Gautheriana, 237
    Nux-Vomica, 287
Sturgeon, 249
Stye.—See Eyelids, 559
Styptic Collodion, 74
Styptics, 50, 585
Styracin, 376
Styrax, 376
    Benzoin, 129
Styrol, 376
Subacetate of Lead, 318
Subcarbonate of Bismuth, 131
Subchloride of Mercury, 240
Subiodide of Bismuth, 132
Sublimation, 411
Subnitrate of Bismuth, 131
Substances best given alone, 453
    difficult to combine in pill, 465
    suitable for mixtures, 454
    suitable for pills, 465
    suitable for powders, 471
    unsuited to pill-form, 466
Subsulphate of Iron, 216
    of Mercury, Yellow, 240
Succinum, 377, 385
Sudorifics, 46
Suet, 366
Sugar, 347
    Beet, 347
    Cane, 347
    Diabetic, 348
    Fruit, 348
    Grape, 348
    of Lead, 317
    of Milk, 348
    Starch, 348
    in Urine, Tests for, 723
Sulphate of Aluminium, 92
    of Aluminium and Ammonium, 91
    of Aluminium and Potassium, 91
    of Ammonium, 94
    of Atropine, 126
    of Cadmium, 137
    of Cinchonidine, 178
    of Cinchonine, 178
    of Copper, 194
    of Duboisine, 202
    of Hyoscyamine, 248
    of Iron, 216
    of Iron, Dried, 216
    of Iron, Precipitated, 216
    of Iron and Ammonium, 217
    of Magnesium, 271
    of Manganese, 274
    of Morphine, 203
    of Potassium, 323
    of Quinidine, 178
    of Quinine, 177
    of Sodium, 309
    of Sparteine, 360
    of Strychnine, 288
    of Tetra-hydromethyl-chinoline, 179
    of Zinc, 403
Sulphide of Allyl, 119
    of Antimony, 102
    of Antimony, Purified, 102

Sulphide of Calcium, 378
  of Hydrogen, 378
  of Mercury, Red, 240
Sulphite of Magnesium, 73, 271
  of Potassium, 73
  of Sodium, 73
Sulpho-carbolate of Sodium, 61, 62
Sulpho-cyanate of Acrinyl, 367
Sulpho-cyanide of Allyl, 367
Sulphonal, 166
Sulphur, 377
  Liver of, 378
  Lotum, 377
  Milk of, 378
  Precipitated, 378
  Sublimed, 377
  Washed, 377
Sulphurated Antimony, 102
  Lime, 378
  Potassa, 378
Sulphuretted Hydrogen, 378
Sulphurous Mineral Waters, 110
Sumach, Poison, 338
  Smooth, 338
  Swamp, 339
  Sweet, 337
Sumbul, 380
Sun-dew, 202
Sunstroke, 668
Suppositoria, 432, 473
Suppositories, Formulæ, 475
  Official in Br. Phar , 474
  of Tannic Acid, 74
Suppuration, 668
Surgeon's Agaric, 83
Surgical Fever, 668
Svapnia, 292
Swallowing.—See Dysphagia; (Esophagus, Disorders of.
Swamp Sassafras, 273
Sweet Bay, 273
  Flag, 143
  Gum, 376
Swift's Specific, S. S. S., 706
Sycosis, 668
Sydenham's Laudanum, 293
Syncope, 668
Synovitis, 669
Syphilis, 669
Syrup of Acacia, 56
  of Allium, 89
  of Almond, 97
  of Althæa, 91
  of Amygdala, 97
  of Citric Acid, 266
  of Garlic, 89
  of Ginger, 406
  of Hydriodic Acid, 252
  of Hypophosphites, 305
  of Hypophos. with Iron, 305
  of Ipecacuanha, 256
  of Iron Bromide, 215
  of Iron Iodide, 216
Syrup of Iron and Mang. Iodide, 218, 274
  of Iron and Mang. Phosphate, 218
  of Iron, Quinine and Strychnine Phosphates, 305
  of Krameria, 262
  of Lactophosphate of Calcium, 305
  of Lactucarium, 263
  of Lemon, 266
  of Lime, 144
  of Manganese Iodide, 274
  of Orange, 122
  of Orange-flowers, 122
  of Phosphates, Compound, 305
  of Prunus Virginiana, 328
  of Rhubarb, 336
  of Rhubarb, Aromatic, 336
  of Raspberry, 344
  of Rose, 343
  of Rubus, 344
  of Rubus, Aromatic, 344
  of Rubus Idæus, 344
  of Sarsaparilla, 357
  of Sarsaparilla, Comp., 357
  of Scilla, 359
  of Squill, 359
  of Squill, Compound, 102, 360
  of Senega, 363
  of Senna, 364
  of Stillingia, Comp., 373
  of Tar, 316
  of Tolu, 125
  of Wild Cherry, 328
  of Zingiber, 406
Syrupi (Syrups), 420

Tabacum, 381
Tabellæ Nitroglycerini, 98
Tabes Mesenterica, 670
Table of Drops, etc., in f℥j, 438, 726
  of Latin Words, Phrases, etc., 691
  for Metric Conversion, 727
  of Precipitant Solutions, 449
  of Specific Gravities and Volumes, 725
  Tables of Differential Diagnosis, 712
  of Weights and Measures, 435, 726
Tablets, 431
  Compressed, List of, 469, 470
  Hypodermic, List of, 470
Tag Alder, 89
Tamarind, 382
Tamar-Indien, 364, 706
Tamarindus, 382
Tanacetin, 383
Tanacetum, 383
Tanjore Pill, 667
Tannate of Cannabin, 149, 151, 165
  of Pelletierine, 231
Tannin, 74
  and Iron, 453
Tansy, 383
  Oil of, 383
  Tea of, 383

Tapeworm, 121, 231, 688
Tar, 315
Tar-water, 316
Taraxacerin, 383
Taraxacin, 383
Taraxacum, 383
Tartar, Crude, 322
  Emetic, 102
Tartra-borate of Potassium, 59
Tartrate of Antimony and Potas., 102
  of Chinoline, 164
  of Iron and Ammonium, 217
  of Iron and Potassium, 217
  Potassio-Cupric, 194
  of Potassium, 323
  of Potassium, Acid, 323
  of Potassium and Sodium, 323
Tartrates, 75
Taste, Agents affecting, 30
  Disordered, 671
Taurocholate of Sodium, 214
Tæniafuges, 40
Tæniæ.—See Worms, 688
Tea, 139
  Flaxseed, 268
  German Breast, 57
  Saffron, 192
  Tansy, 383
  Worm, 371
Teeth, 671
  Agents affecting, 34
Teething.—See Dentition, 533
Temperature of the Body, 717
Tenesmus.—See Dysentery, 541
Terchloride of Methyl, 168
Terebene, 385
Terebinthene, 385
Terebinthina, 384
  Canadensis, 384
Terpine, 385
Terpinol, 385
Tersulphate of Iron, 217
Testa Præparata, 143
Testicles, 671
Testing, 417
Tests for Morphine, 294
Tetanus, 671
Tetrachloride of Carbon, 81, 169
Tetra-iodo-pyrol, 252
Tetter.—See Herpes, Pityriasis, Psoriasis
Thalline, 179
Thebaine, 292
Theine, 138, 141
Theobroma Cacao, 140, 387
Theobromine, 141, 387
Therapeutical Incompatibility, 451
Therapeutics, 17, 479
  Applied, 18, 479
  Empirical, 18
  Natural, 17
  Rational, 18
  Special, 479
Theriaca, 348
Thermometer, Clinical, 717
Thimble berry, 344
Thirst, 672
  Agents allaying, 35
Thistle, Blessed, 156
Thompson's Eye-water, 706
Thorn-apple, 373
Thorough-wort, 213
Throat.—See Aphonia, Croup, Diphtheria, Laryngitis, Pharyngitis, Scarlet Fever, Tonsillitis, etc.
Throat, Sore, 672
Thrush.—See Aphthæ, 491
Thuja, 385, 388
Thujetin, 388
Thujin, 388
Thus Americanum, 385
Thyme, Garden, 389
Thymene, 389
Thymol, 389
Thymus vulgaris, 389
Tic Douloureux, 672
Tiglii Oleum, 390
Tincture of Aconite, 76
  of Ailanthus, 85
  of Aloes, 90
  of Aloes and Myrrh, 90
  of Arnica-flowers, 115
  of Arnica-root, 115
  of Asafetida, 119
  of Aurantium Amarum, 122
  of Aurantium Dulce, 122
  of Baptisia, 125
  of Belladonna, 126
  of Benzoin, 129
  of Benzoin, Compound, 129, 376
  of Berberis, 130
  of Bryonia, 136
  of Calendula, 145
  of Calumba, 145
  of Camphor, 147
  of Cannabis Indica, 149
  of Cantharides, 151
  of Capsicum, 153
  of Cardamom, 155
  of Cascarilla, 158
  of Catechu, Compound, 159
  of Chirata, 164
  of Chloroform and Morphine, 169, 294
  of Chloroform, Compound, 169
  of Cimicifuga, 175
  of Cinnamon, 183
  of Cinchona, 177
  of Cinchona, Compound, 177
  of Cocculus, 310
  of Colchicum, 184
  of Conium, 186
  of Coto, 191
  of Crocus, 192
  of Cubeb, 193
  of Digitalis, 199
  of Duboisia, 202
  of Eucalyptus, 212

- Tincture of Euphrasia, 214
  - of Galls, 223
  - of Gelsemium, 224
  - of Gentian, Compound, 226
  - of Ginger, 406
  - of Guaiac, 232
    - Ammoniated, 232
  - of Hemp, Indian, 149
  - of Hops, 238
  - of Humulus, 238
  - of Hydrastis, 246
  - of Hyoscyamus, 248
  - of Ignatia, 250
  - of Iodine, 251
  - of Ipecac and Opium, 256, 293
  - of Iron Acetate, 215
  - of Iron Chloride, 215
  - of Kino, 261
  - of Krameria, 262
  - of Lavender, Compound, 265
  - of Lobelia, 269
  - of Lupulin, 238
  - of Matico, 277
  - of Musk, 284
  - of Myrrh, 286
  - of Nitro-glycerin, 98
  - Norwood's, 396
  - of Nutgall, 223
  - of Nux Vomica, 288
  - of Opium, 292
  - of Opium, Camphorated, 293
  - of Opium, Compound, 293
  - of Opium, Deodorized, 292
  - of Opium and Ipecac, 293
  - of Orange Peel, Bitter, 122
  - of Orange Peel, Sweet, 122
  - of Phosphorus, 304
  - of Physostigma, 308
  - of Phytolacca, 309
  - of Pulsatilla, 328
  - of Pyrethrum, 330
  - Pyrexialis, 178
  - of Quassia, 331
  - of Quebracho, 332
  - of Rhubarb, 336
  - of Rhubarb, Aromatic, 336
  - of Rhubarb, Sweet, 336
  - of Rhus Toxicodendron, 339
  - of Sanguinaria, 353
  - of Serpentaria, 365
  - of Soap, Green, 357
  - of Squill, 359
  - of Stillingia, 373
  - of Stramonium, 374
  - of Strophanthus, 375
  - of Sumbul, 380
  - of Thuja, 388
  - of Tolu, 125
  - of Valerian, 394
  - of Valerian, Ammoniated, 394
  - of Vanilla, 395
  - of Veratrum Viride, 396
  - of Viscum, 400
- Tincture of Zingiber, 406
- Tincturæ, 425
- Tinea Circinata, 673
  - Decalvans, 673
  - Favosa, 673
  - Sycosis.—See Mentagra, 617
  - Tonsurans, 673
- Tobacco, 381
  - Indian, 269
  - Symptoms.—See Nervousness, 621
- Toe-nails.—See Nails, 619
- Tolene, 125
- Toluene, 347
- Tomato, 203
- Tonga, 391
- Tongine, 391
- Tongue, 674
- Tonics, 41
  - Cardiac, 33
  - Formulæ, 484, 488, 622
  - Gastric, 35
  - Hair, 486
  - Nerve, 622, 630
  - Pills for Women, 469
  - Uterine, 48
  - Vascular, 34
  - Vesical, 45
- Tonsillitis, 674
- Tonsils, Enlarged, 674
  - Ulcerated, 675
- Toothache.—See Odontalgia, 626
- Toothrash.—See Strophulus, 668
- Torrefaction, 412
- Torticollis, 675
- Torulæ.—See Sarcinæ, 659
- Tracheitis.—See Croup, 528
- Trachoma.—See Conjuctivitis Granular, Ophthalmia, 522, 627
- Tragacantha, 391
- Traumaticine, 234
- Traumatic Fever, 668
- Treacle, 348
- Tree of Heaven, 85
- Tri-chlor-aldehyde, 165
- Tricophytosis Capitis.—See Tinea, 673
- Trimethylamine, 114, 115, 238
- Trinitrophenol, 72
- Trinitrate of Glyceryl, 98
- Trinitrin, 98
- Trismus, 675
- Triticin, 392
- Triticum, 392
  - Vulgare, 100
- Trituration, 413
  - of Elaterinum, 204
- Triturationes, 432, 472
- Triturations, Advantages of, 472
  - Formulæ, 473
  - of Mercury, 240
- Troches, 431, 469
  - of Ammonium Chloride, 94
  - of Catechu, 159
  - of Chalk, 143

- Troches of Cubeb, 193
  - of Ginger, 406
  - of Ipecac, 256
  - of Iron, 216, 395
  - of Krameria, 262
  - of Liquorice and Opium, 228, 293
  - List of, 469
  - of Magnesia, 272
  - of Morphine and Ipecac, 256, 294
  - of Peppermint, 280
  - of Potassium Chlorate, 322
  - of Santonin, 355
  - of Sodium Bicarbonate, 369
  - of Sodium Santoninate, 355
  - of Tannic Acid, 74
  - of Zingiber, 406
- Trochisci, 431
- Tropeius, 126
- Tropical Fruit-Laxative, 364
- Tropin, 126
- Trypsin, 300
- Tubercular Meningitis.—See Hydrocephalus, Acute, 592
- Tuberculosis.—See Phthisis, Scrofulosis, 640, 662
- Tully's Powder, 293
- Tumors, 675
  - Diagnosis of, 713
  - Uterine, 683
- Turnera aphrodisiaca, 197
- Turpentine, 384
  - Canada, 384
  - Chian, 384
  - Oil of, 384
  - Venice, 385
- Turpeth Mineral, 240
- Tympanites, 675
- Typhlitis, 676
- Typhoid Fever, 676
  - Diagnosis of, 716
- Typho-malarial Fever.—See Typhoid
- Typhus Fever, 677
  - Diagnosis of, 716

- Ulcers and Sores, 678
  - of Rectum, 654
  - of Stomach, 567
  - of Tonsils, 675
  - of Uterus, 683
- Ulmus, 392
- Umbelliferon, 223
- Umbrella-tree, 273
- Unguenta, 432, 475
- Unguentum, 100, 432
- Uræmia, 670
- Urea, Agents affecting, 40
- Urethane, 166
- Urethra, Stricture of, 679
- Urethral Injections, 569, 571
- Urethritis, 679
- Urginea Scilia, 350
- Uric Acid Diathesis.—See Lithæmia, 608
- Urinary Astringents, 45
  - Disorders, 680
  - Sedatives, 45
- Urine, Acidifiers of, 45
  - Alkalinizers of, 44
  - Examination of, 722
- Urticaria, 681
- Ursone, 223, 393
- Ustilago, 402
- Uterine Alteratives, 48
  - Cancer, 681
  - Congestion, 681
  - Depressants, 48
  - Diseases, 682
  - Displacements, 682
  - Hypertrophy, 681
  - Prolapse, 647
  - Tonics, 48
  - Tumors, 683
  - Ulceration, 683
- Uva Ursi, 392
- Uvula, 683

- Vaccination, 683
- Vaginismus, 683
- Vaginitis, 684
- Valerene, 393
- Valerian, 197, 393
- Valerianate of Ammonium, 94, 395
  - of Butyl, 101
  - of Iron, 217
  - of Quinine, 177
  - of Zinc, 395, 403
- Valerianates, 394
- Valerol, 238, 393
- Vallett's Mass, 215
- Van Buskirk's Sozodont, 707
- Vanilla, 395
- Vanillin, 395
- Vao, 196
- Vapores, 477
- Vaporization, 410
- Vapors, 477
- Varicella, 684
- Varicocele, 684
- Varicosis, 684
- Variola, 684
  - Diagnosis of, 715
- Vascular Sedatives, 34
  - Stimulants, 34
  - Tonics, 34
- Vaseline, 304
- Vegetable Drugs, their Constituents, 408
- Veins.—See Phlebitis, Phlegmasia, Varicosis.
- Veins, Transfusion by, 20
- Velatine, 182
- Vellarine, 247
- Venous Medication, 20
- Veratralbine, 396
- Veratrine, 396
- Veratroidine, 396

- Veratrum Album, 396
  - Sabadilla, 396
  - Viride, 395
- Verbascum, 398
- Verbs, 699
- Vermicides, 40
- Vermifuges, 40
- Vertigo, 685
- Verucca.—See Warts, 687
- Vesical Tonics, 45
  - Sedatives, 45
- Vesicants, 49
- Viburnin, 399
- Viburnum, 399
  - Compound, 399
  - Opulus, 399
  - Prunifolium, 399
- Vienna Paste, 322
- Villate's Solution, 195
- Vina (See also Wines), 426
- Vinegar, 58
  - Bitters, 707
  - of Lobelia, 269
  - of Opium, 293
  - of Sanguinaria, 353
  - of Squill, 359
- Vinegars (Aceta), 428
- Vinum, 86
  - Album, 86
  - Aromaticum, 86
  - Official (See Wine of—)
  - Portense, 86
  - Rubrum, 86
  - Xericum, 86
- Viola cucullata, 400
  - Tricolor, 399
- Violine, 399
- Viscin, 400
- Viscum, 400
- Visions, Agents producing, 29
- Vitellin, 400
- Vitellus, 400
- Vitriol, Elixir of, 72
- Volkmann's Antiseptic Fluid, 389
- Vomiting, 685
  - of Pregnancy, 686
  - Diagnosis of, 717
- Vulva, Eczema, etc., of, 687
- Vulvitis, 687

- Wade's Bougies, 475
- Wafers, 471
- Wahoo, 213
- Walker's Vinegar Bitters, 707
- Warburg's Tincture, 178, 182
- Warming-plaster, 120
- Warner's Safe Cure, 707
- Warts, 687
- Wash, 460
  - Black, 241
  - Mouth, 573
  - Yellow, 241
- Washing, 414
- Waste, Agents promoting, 42
- Wasting.—See Atrophy, Emaciation, 494, 549
- Wasting Diseases, 549
- Water, 108
  - Almond, Bitter, 97
  - of Ammonia, 93
  - of Ammonia, Stronger, 93
  - Anise, 101
  - Camphor, 147
  - Carbolic Acid, 60
  - Carbonated, 108
  - Cherry-laurel, 69
  - Chlorine 172
  - Cinnamon, 183
  - Creasote, 191
  - of Crystallization, 416
  - Distilled, 108
  - Elder-flower, 352
  - Fennel, 221
  - Hunyadi, 524
  - Laurel, 67
  - Orange-flower, 122
  - Peppermint, 280
  - Rose, 342
  - Soda, 108
  - Spearmint, 281
  - Tar, 316
- Water-lily, 290
- Water-pepper, 321
- Waters (Aquæ), 419
  - Mineral, 109, 112
  - Nomenclature, 108
- Wax, 160
- Wax Myrtle, 64
- Weakness.—See Adynamia, Exhaustion, 483, 557
- Weights and Measures, 435, 726
  - Apothecaries', 436, 726
  - British Pharmacopœial, 436
  - Metric, 436, 727
- Wen, 688
- Whiskey, 85
- White-leg.—See Phlegmasia, 639
- White-swelling.—See Joints, Synovitis, 602, 669
- Whitlow.—See Onychia, 627
- Whooping-cough, 637
- Willow, 349
- Wine, 86
  - of Aloes, 90
  - of Antimony, 102
  - Aromatic, 86
  - of Cocaine, 208
  - of Colchicum-root, 184
  - of Colchicum-seed, 184
  - of Ergot, 205
  - of Ipecac, 256
  - of Iron, Bitter, 217
  - of Iron Citrate, 215
  - of Opium, 293
  - Port, 86

Wine of Quebracho, 332
  Red, 86
  of Rhubarb, 336
  Sherry, 86
  of Tar, 316
  of Tobacco, 381
  White, 86
Wines (Vina), 86, 426
Winter-berry, 327
Wintergreen, 223
Witch-hazel, 64, 235
Wood Oil, 233
Woorara, 196
Words and Phrases, Latin, 691
  Sundry, 700
Worms, 40, 688
Worm-grass, 372
Wormseed, 162
  Levant, 355
Worm Tea, 371
Wormwood, 55
Wounds, 689
Writer's Cramp.—See Spasmodic Affec tions, 664

Xantho-puccine, 246
Xanthoxyline, 401
Xanthoxylum, 401
Xeroderma.—See Ichthyosis, 594

Yam, Wild, 201
Yellow Fever, 689
  Diagnosis of, 717
Yerba Santa, 207
Yolk of Egg, 400

Zea Mays, 402
Zincite, 403
Zincum, 403
Zingiber, 405
Zona.—See Herpes Zoster, 591

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